UNIVERSITY OF KWAZULU-NATAL

Effectiveness of SAP Finance Module Implementation in Pick n Pay Retail

By

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DECLARATION

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ABSTRACT

The aim of this study was to determine whether the SAP Finance module implemented in Pick n Pay retailers was successful or not. In order to establish the success of the implementation it was necessary to obtain a management and user perspective. In order to assist in evaluating the effectiveness of the SAP finance module the finance strategy of the organisation was explored with the group financial director. Information Technology and systems justification to identify and select and appropriate ERP system are discussed in this research document. Furthermore, a questionnaire was devised to measure the users' response to the effectiveness of the implementation. This questionnaire was circulated to all the finance users of SAP in the Western Cape corporate division as well as the regional support office. It included accountants, creditors, expenses, debtors and financial managers. The data generated revealed that there was a significant relationship between the training and user acceptance of the SAP system. Furthermore, there was a strong resistance to system adoption by employees with longer service. This research document will assist the organisation in identifying obstacles that have impacted on the success of the implementation of SAP in the business.

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Chapter One

Introduction

1.1 Research Problem

Pick n Pay has implemented the SAP as the Enterprise Resource Planning system. The main driver for implementing SAP into the business was the fact that the legacy systems did not provide one truth. The information that was extracted form the legacy system would differ dependent on where it was extracted from and even to the extent of who extracted the information. This created inefficiencies from a management reporting perspective which compromised the integrity of the data.

To date there has been no evaluation of the efficiencies derived by the implementation of the SAP Finance module. In order to evaluate the anticipated efficiencies it is imperative that an assessment be conducted to establish the possible correlation of the demographics of users and user acceptance. This includes an evaluation of the training pre and post SAP implementation. This study intends to understand whether or not there is in fact a correlation between demographics and user acceptance in the adoption of a new software system in the Pick n Pay Finance division. The results of the questionnaire will contribute to the answering this question of correlation and user acceptance. Ultimately, this dissertation intends to establish whether or not the SAP implementation in Pick n Pay Finance divisions achieved the desired results in that operational efficiencies were improved; whether the implementation was successful; the learning's taken from the impact that training would have as a critical success factor and ultimately whether or not the implementation of SP has achieved the desired effectiveness within the Finance division identified for the purposes of this research.

This questionnaire intends to evaluate the improved efficiencies introduced into the business of the finance division with the implementation of the Finance SAP module. The research will be limited to the finance divisions within the Western Cape. This includes the retail finance division and the corporate divisions only.

1.2 Concept Matrix

A concept matrix is utilised for the purpose of the literature review. This concept matrix is contained in Appendix F. According to Klopper *et al., (*2007) the concept matrix provides a systematic approach to the literature review. This approach will ensure that the literature review constitutes a well structured framework of relevant references to the research project. The concept matrix included above ensures that only relevant research has been included herein.

1.3 Research Methodology

According to Ghuari *et al., (1995)* one reason for collecting and using quantitative data is to aggregate them to analyse an organisation. In order to assess the effectiveness and improved efficiencies of the SAP Finance module in Pick n Pay, the research methodology to be adopted herein is quantitative in nature. A questionnaire was distributed to all the finance personnel in the two selected finance divisions of Pick n Pay. This research methodology is intended to gather quantitative data from the finance staff within Pick n Pay corporate division in Cape Town as well as the Western Cape support office finance department management. The data was aggregated and analysed to measure the relationship between demographics, user acceptance of the new SAP system versus the legacy systems and the training they received on the new system. This questionnaire was intended to identify the user's perception of the improved efficiencies brought about by the introduction of SAP into their work environment.

1.4 Objectives of the Research

- To identify the benefits that an Enterprise Resource Planning (ERP) system should provide to an enterprise.
- To understand the impact of demographics on user acceptance.
- To understand the impact of demographics on training provided to implement the SAP finance module.
- To understand whether or not the implementation of the SAP finance module has in fact improved efficiencies in Pick n Pay Retailers

1.5 Background of the Research

Pick n Pay consists of a decentralized structure with independent finance divisions. The implementation of the SAP R3 ERP system of Pick n Pay commenced in January 2006 with the Western Cape region as the pilot. The Pick n Pay project manager for this implementation was Ursula Warner. According to Ursula Warner the SAP implementation for the Western Cape region was completed on the 17th July 2006. The plan was to implement one region at a time, stabilize and then move on to the next region. Only the Western Cape was at the time of the compilation of this study still in progress. It would not be possible to research and explore the effectiveness or improvement in operational efficiencies within all the Finance divisions within the organisation as a result of the implementation of SAP Finance module not being fully implemented. This study will focus primarily on the implementation of the Finance modules within the Corporate Finance and Western Cape regional support office Finance division.

1.6 A Brief Description of Pick n Pay Retail Structure

The Pick n Pay retail environment consists of numerous business units. The Pick n Pay retailing division business is owned and controlled by the Ackerman Family under the Pikwik holding company. The supermarket division is decentralized according to geographics. Each geographical region consists of a full regional support office with an entire buying, HR and finance and administration department.

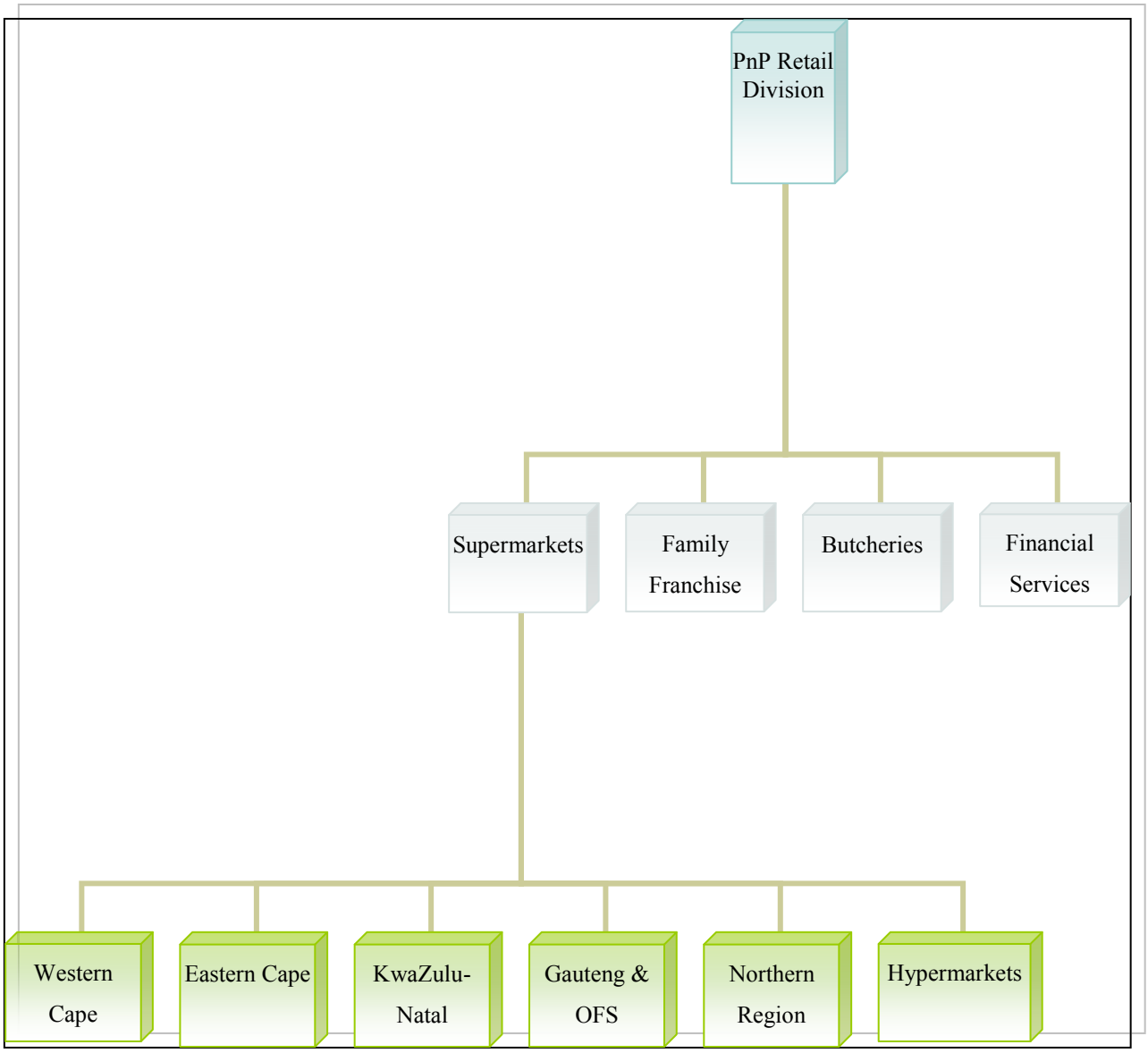

Figure 1: Structure of Pick n Pay retail division (http://www.picknpay.co.za)

1.7 Reason for the Research

The problem statement pertaining to this study is that as a result of the pressures and deadlines relative to an implementation of an ERP system, seldom is the time taken to actually evaluate the effectiveness and improved efficiencies of such implementations. The interpretation of the implementation results are at most times prejudiced by members of a project as their key performance indicators are based on the success of the implementation. This study intends to evaluate the effectiveness of the implementation from an end user perspective; identifying the extent of improved efficiencies. This

research will include a quantitative questionnaire that will be distributed amongst the identified finance personnel within the Corporate and Western Cape Support Office Finance division of Pick n Pay.

1.8 Value of the Research

This will constitute the first independent assessment of the implementation of the SAP Finance module within Pick n Pay. The business can utilize the research results to adjust the implementation strategies for subsequent rollouts in the remainder of the regions to ensure that the ERP system achieves the full effectiveness as per its intended design. Furthermore, this research will enable the organisation to identify opportunities to improve the training process to ensure that the users optimize the usage of the SAP system within their business units to leverage efficiencies.

1.9 Limitations

The research is limited to the Corporate and Western Cape Support finance divisions of Pick n Pay as the implementation has not taken place in the finance divisions of the regional support offices. The research will focus on the users' interpretation of the effectiveness of the implementation and will also attempt to identify improved efficiencies in the finance division of the business.

1.10 Structure of the Dissertation

The study will be structured as follows:

Chapter Two - Literature Review

This chapter will provide a review of the literature required to support the research questions formulated in Chapter 1 hereof. This chapter will explore strategies for finance as identified from various literary sources as well as an interview with the Group Financial Director of Pick n Pay Retailers (Pty) Ltd; defining Information Technology and the justification of adopting an ERP system within IT; Aligning an ERP system with the defined business requirements; Identifying the financial

impacts of ERP implementations and the various costs associated with implementing and ERP system; The selecting of an appropriate ERP system; The lessons learnt in selecting and implementing an ERP system.

Chapter Three - Research Methodology

This chapter will discuss the various method adopted to establish the effectiveness of the implementation of the SAP Finance module in Pick n Pay Retailers (Pty) Ltd. This method is by way of a designed questionnaire that will be completed by a sample of employees situated in the Western Cape Pick n Pay Support office as well as the Corporate Finance division in Cape Town. This research will be followed by a review of the results of the questionnaires collected.

Chapter Four - Discussion of Findings

This chapter will review the empirical findings of the data collected in Chapter 4. The data will be tabulated and represented as a figure and statistically analyzed.

Chapter Five - Recommendations & Conclusions

This chapter concludes the research as to the effectiveness of the implementation of the SAP Finance module in Pick n Pay including recommendations for future implementations to ensure maximum effectiveness and value generation to maximize cost benefit.

1.11 Conclusion

The problem statement in this chapter has been identified in that there has been no assessment of the implementation of the SAP Finance module in Pick n Pay. This includes understanding the correlation between end user acceptance and demographics; the impact of training on user acceptance and the overall achievement of the desired efficiencies expected when implementing a new software system within an organisation. These

improved efficiencies include the integrity of data and the ability of management to produce management reports that are accurate, timeous and relevant to the operational business units. This study will include a questionnaire that will be distributed to a select sample group in the Western Cape finance divisions. This questionnaire is structured to identify the various demographics groups according to age, qualification, gender, status in the organisation, computer literacy and year's service. The second section of the questionnaire includes questions related to the evaluating end users view of the efficiencies of the legacy versus the SAP system. The final section of the questionnaire deals with understanding the end users responses to the impact of their training that they received relative to user acceptance.

Chapter two includes a literature survey pertaining to aligning business strategy to Information Systems. Included in this chapter is a survey on what are information systems; enterprise resource planning (ERP), SAP; Traps of an ERP implementation; effective adult learning and the research questions that have resulted from the problem statement and this literature survey.

Chapter 2

Literature Survey

2.1 Introduction

The prime purpose of a literature review is to frame the problem under scrutiny; identify relevant concepts, methods or techniques and facts and to position the study. The literature review assists in shaping the research problem (Ghuari *et al.,* 1995). The purpose of this research project is to evaluate the effectiveness of the SAP implementation in the finance division of Pick n Retailers (Pty) Ltd.

The chapter includes a discussion on the alignment of business strategies with IT strategies; a brief discussion on systems and the relevance they have within an organisation; enterprise resource planning discussion; ERP justification for business; selection of ERP systems and the pitfalls associated with implementing ERP systems. An entire section of this chapter will be dedicated to linking change management and training to support end user preparation. The chapter will be concluded with formulated research questions that will constitute the next chapter of this research project. The research questions are intended to answer questions that have been identified as a result of the literature review that require testing to establish the effectiveness of the SAP implementation in the selected finance divisions of Pick n Pay retailers. The chapter will then be summarised in the conclusion. The chapter discusses what systems are and their functions are in the organisations environment. This chapter reviews how management information systems support the three levels of business. These topics provide an introduction into Enterprise Resource Planning (ERP). Included in this chapter are the characteristics of an ERP system and its associated architecture including a rationale adopted by an organisation to implement an ERP system. Included is a discussion as to the benefits of SAP R/3 and the application of SAP best practice incorporating migration obstacles, ERP implementation traps and business strategy alignment. The chapter will include a discussion on the SAP ASAP approach to end-user training. In closing the

chapter will incorporate the research questions that remain to be answered by way of a questionnaire.

2.2 Strategy alignment

Robson (1997) writes that whilst determining the strategy of an organisation is only one of the functions of management it may be the most significant form of management decision making. The complexity of modern business ensures that strategic management is, at least partially, the responsibility of all managers and hence all managers require an awareness of the business direction of the whole organisation: that is corporate strategy (Robson, 1997). Robson (1997) continues that it is certainly desirable to plan ahead for the IS function and that planning should be at a strategic, organisational level. It should not be only at the level of project planning (Robson, 1997). In the same manner the business strategy flows through to the functional areas of the business which includes IS and thus there must be a commitment to the IT strategy which supports and is aligned to the business strategic plan. Thompson and Strickland (2001) state that the included in the role of every company manager is that of a strategy-making or strategy-implementing. It is flawed thinking to view strategic management as solely the province of senior executives (Thompson and Strickland, 2001). In essence it is a commitment from management in doing his/her job to implement the chosen business strategy.

With this alignment of strategy between IT and the business in mind, as well as ERP implementation strategies, Bhuta (2001) writes that top management commitment can be secured by demonstrating that technological automation enables business strategy to be realised. A good way to show this is to start with the strategy and then identify the business processes that are or will be in place to fulfil the strategy. The next step is to visualise and outline how the new system will help the organisation execute identified processes (Bhuta, 2001). The success probability matrix by Robson (1997) is presented below. It represents an organisation's chances of success from IS. The matrix simply sums up the advantages of having consistency between IS and business strategies and indicates the absence of total certainty even when this is the case. Given the fact that success probability is increased if consistency is achieved it is not surprising that a great

deal of attention has been given to achieving some certainty of this consistency (Robson, 1997).

	IS strategy/ business strategy ARE consistent	IS strategy/ business strategy ARE NOT consistent
Execution of the plan is GOOD	Success is LIKELY	Success is POSSIBLE
Execution of the plan is POOR	Problems are LIKELY	Failure is EXPECTED

Figure 2: Success probability matrix (Robson, 1997)

The crafting of an IT strategy has many facets and can be initiated from - amongst others - business-led, inside-out or infrastructure-led approach (Robson, 1997). From the review above, the importance of taking cognisance of the alignment of the IT and business strategy to improve the success probability of and ERP implementation is noted.

2.3 Management Information Systems

According to Shultheis and Sumner (1988) a system is an integrated set of components or entities that interact to achieve a particular goal. Systems have characteristics, viz:

- Boundaries
- Outputs & inputs
- Methods of converting inputs to outputs
- System interfaces

The focus of this study is on a Management Information System (MIS). An information system is a subsystem of the business system of an organisation (Shultheis and Sumner, 1998). Robson (1997) reflects that MIS is perceived as having been developed to service various levels and aspects of management activities to the extent that each level of MIS has different emphasis.

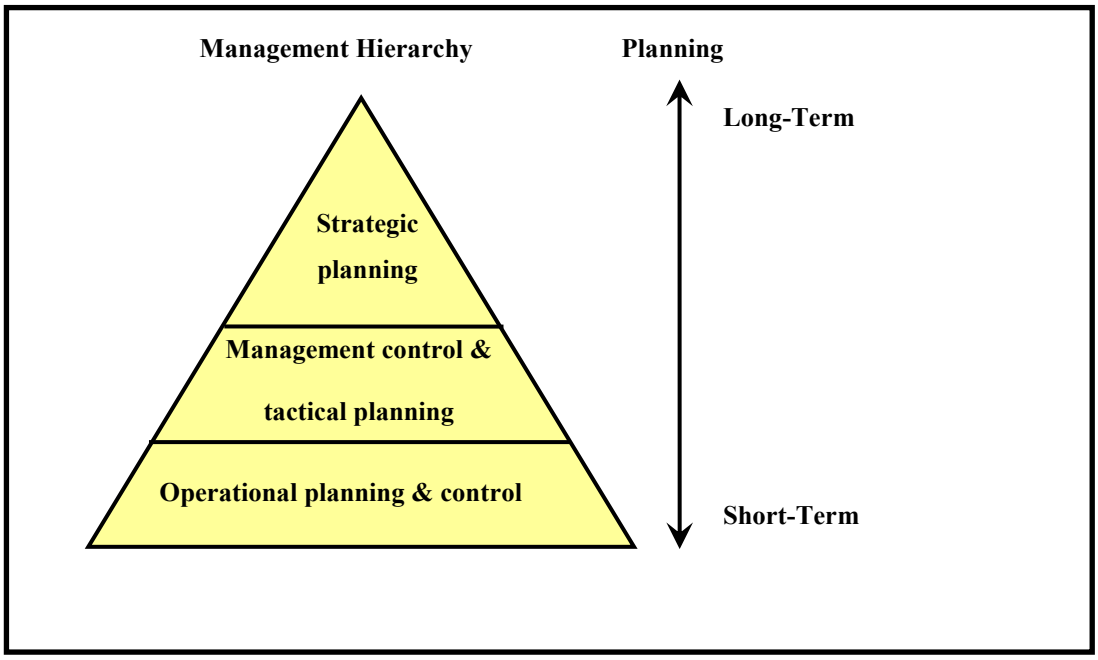

Figure 3: Levels & planning horizons of management activities (Robson, 1997)

MIS is constructed for each of the 3–levels contained in Figure 3 above. The effectiveness of the MIS support to each level is accumulative. The effectiveness of the decision making derived from each level is dependent on the MIS in that particular level plus the MIS at the levels below. To this end, strategic planning is dependent on management control, tactical planning, operational planning and control. As per Shultheis and Sumner (1998) the purpose of each level is:

- Operational planning & control systems – Collection, validation & record data that describes the acquisition, disbursement of corporate resources. This includes financial data on creditors, debtors, and payroll and cash takings. Shultheis and Sumner suggest that these systems have the characteristics of repetitiveness, predictability, historical, detailed, internal origins, are structured in form and have great accuracy. Operational systems support daily transactions. Its source is internal to the business with a very structured format, and accuracy of the data is essential.
- Tactical systems – Information is structured in a summarised and aggregate format. These systems, according to Shultheis and Sumner provide middle management with the information required to control operations and their allocate resources

effectively. The se systems have the followin g characteristics: periodic nature; unexpected findings; comparative nature in summary form, from both int ernal and external sources.

- Strategic pl anning – This level is designed for executive mana gement and is used on a n *ad-hoc* basis. S hultheis and S umner (1 998) state that the c haracteristics include: unexpected information, predictive in nature, summary form, external data, unstructured format and are subjective.

Shultheis and Sumner (1998) conclude that an Information System is a set of procedures organised to generate information that enables managers to review operational, tactical and strategic plannin g activities. Management Information Systems are d esigned to provide the correct information f or e ffective plannin g a nd tac tical decision maki ng. In or der to achieve this, data is often aggregated to provide these informational requirements. It must therefore be s aid that operational level data systems are the bedrock of MIS. In order to achieve this it is imperative that the transactional data is accurate and reliable.

2.4 Enterprise resource planning

The Ox ford dictionar y onli ne de fines ERP as "enterprise resource planning , th e management of all the information and resources involved in a company's operations by means of an integrated computer system". According to Jakovljevic (2000) the a cronym ERP found it origins in defining a sophi sticated and int egrated software s ystem primarily utilised in manufacture. ERP s ystems create int eractive e nvironments designed to assist companies in the management and analysis of the business processes associated with stock, orders and accounting etc. The definition has since expanded and according to Jakovljevic (2000) there are 3 major areas of ERP, viz;

- Manufacturing & logistics
- Finance & accounting
- Human resources & payroll

For the purposes of this research project focus will be limited to the finance and accounting area of ERP. According to Jakovljevic (2000) the finance and accounting module encompasses bookkeeping and ensuring that debtors and creditors are paid on time. These modules include general ledger, debtors and creditors, fixed assets, cash flow, budgeting, cost control and financial consolidations.

ERP systems provide support to all 3-levels and planning horizons of the management activities, viz; operational, tactical and strategic. According to Jakovljevic (2000) the scope of ERP financial functionality has progressed beyond traditional transactional business functions by enabling organisations to deliver real-time performance analysis directly to the desktops of CEO's, CFO's and other relevant business managers. Leading systems increasingly leverage „On Line Analytical Processing' (OLAP) technology. OLAP performs multidimensional analysis of business data and provides the capability for complex calculations, trend analysis and sophisticated data modelling. It is quickly becoming the fundamental foundation for intelligent solutions.

2.5 Justifying ERP's for business

ERP's are described by Haag *et al .,* (2005) as being critical in today's business environment. ERP refers to the methodology of keeping an overview of every part of the business thus ensuring that all facets of the business will be co-ordinated effectively and efficiently to contribute to the organisations strategy. Jakovljevic writes that there are 3 major reasons why companies elect to implement an ERP system, viz;

- Integration of financial data
- Standardization of manufacturing processes
- Standardization of HR information

The emphasis for the purposes of this research project will be on the integration of financial data. A CEO may find many versions of the truth when interpreting an organisations overall performance. Each business unit may well have their own set of

numbers that differ from that of finance. An ERP system creates a single version of the truth that cannot be questioned as everyone accesses the data from the same repository (Jakovljevic, 2000). Jakovljevic also states that an ERP system is able to achieve this "one truth" in the fundamental premise that the whole is always greater than the sum of its parts. Transactions in traditional legacy applications systems are treated separately. These legacy systems are based on stringent boundaries that are specific to the functions of the intended organisation. An ERP system does not treat these transactions separately as stand-alone activities and instead considers them as part of an inter-linked process that constitutes the entire business.

Typical application systems are designed to store, process and present data in a standard format that is requested by the end user. Generally there is no link between the application systems utilised by the various business units. The purpose of the ERP system is to bridge the application systems of the various business units by using an integrated database system. All the transactions of the various business units are stored on this database in tables. These tables integrate the data and enable them to be accessed by multiple users for multiple purposes and even at multiple destinations dependent on the hardware typology (Jakovljevic, 2000).

Jakovljevic (2000) also developed a wider ranging rationale for implementing ERP systems as reflected in table 1 below.

Table 1: Essential ERP - Its functional scope (Jakovljevic, 2000)*)*

Why companies purchase ERP		
Strategic Reasons	**Enabling (tactical) Goals**	**Technical Reasons**
Enable new business strategies	Reduce cost / improve productivity	Standardise system platform
Enable globalization	Increase flexibility	Improve quality & visibility of information
Enable growth strategies	Integrate business processes	Enhance technology infrastructure
Extend supply / demand chain	Integrate acquisitions	
Increase customer responsiveness	Standardise business processes	
	Improve specific business processes / performances	

Jakovljevic (2000) states that in the current dynamic and turbulent business environment there is a compelling requirement for organisations to be globally competitive. Technology has enabled organisations to communicate across borders with ease thus making the competitive business environment throughout the world even smaller. In order for an organisation to survive this competitiveness they have to be closer to the customer and deliver value-add products and services to market in shortest lead times as possible. Speed to market is becoming a single differentiator that provides an organisation with the required competitive advantage. Integration of business processes enables this process. This is the stronghold of ERP.

2.6 SAP

Background to SAP

SAP is a German acronym which loosely translated means "Systems Analysis and Program Development" or "Systems, Application, Products in data Processing". The company was founded in 1972 by five former IBM engineers in Mannheim, Baden-Württemburg. They

were Dietmar Hopp, Hans-Werner Hector, Hasso Plattner, Klaus E. Tschira and Claus Wellenreuther (SAP 2010).

SAP is the world's largest software company and the third largest independent software provider in terms of revenues. SAP focuses on six industry sectors, viz;

- Process industries
- Discrete industries
- Consumer industries
- Service industries
- Financial industries
- Public services

SAP currently has over 92,000 customers worldwide. SAP services over 120 countries that are grouped together in three geographical regions, EMEA (Europe, Middle East & Africa), Americas and Asia Pacific Japan (Japan, Australia and parts of Asia). SAP employs in excess of 47,598 people thorough these geographical regions. SAP has been successful within Africa in providing the benefits of their application software.

Benefits of SAP

There are numerous SAP benefits but only those appropriate to this study will be explained in this section. Important to note is that an ERP system must be an appropriate choice for the company in order to realise such benefits. These benefits include:

- Integration
- Online real time environment
- Research and development (not relevant for purposes of this research project)
- Support (not relevant for purposes of this research project)

Integration - Jakovljevic (2000) states that ERP is the current generation of resource planning systems that replaces "islands of information" with a singular packaged software solution integrating all traditional enterprise management functions. ERP systems utilise database technology and a single interface to control information related to an organisation. Single application architectures such as SAP would significantly reduce the numbers of interfaces required to be maintained. An interface is a mechanism that updates information between systems. According to Strub (2003), if interfaces are not designed and functioning correctly maintaining information across systems will not be possible and will result in anomalies. Interfaces are expensive and are essential to ensure that data is not lost or duplicated from one system to another across business units.

SAP provides seamless integration throughout all its modules. The data is updated immediately and available for use by all other modules once the user completes the process stage of a transaction. Integration eliminates the duplication of data and makes the information available for sharing when the data capture process has been completed.

Figure 4 below reflects the integration schema of SAP and the various modules. This figure reflects the SAP client that is core to the application. Attached to the SAP client are all the various SAP modules that are available to end users. The end users may elect which modules they wish to acquire. An organisation can elect to implement any module of these modules at any point in time. The SAP client allows all these modules to communicate with each other seamlessly. This is what is referred to as an integrated ERP system.

Figure 4: SAP integration schema (SAP, 2010)

Online real time environment - The "R" in SAP R/3 represents "real-time" and the number 3 relates to the "three-tier application architecture". This architecture consists of:

- Presentation layer (client or end user)
- Application layer (server)
- Database layer

The integrative framework of SAP does not require interfaces, uploads or batch updates to update a single source of master data. The data is available immediately once it is captured and reporting can be executed simultaneously to peruse the current status of any part of the business (SAP, 2010).

2.7 The "traps" of an ERP implementation

When migrating to an ERP system one has to be mindful of obstacles that may present themselves in this process. There are many pitfalls when migrating to an ERP system. To this end it is Turbit (2003) that writes of them as the "traps" of an ERP implementation. Management and support is one of such mentioned traps that need to be considered in an implementation of an ERP system. To this end it is essential that the business and IT strategy are well aligned. The implementations will include but are not limited to the following:

- Corporate culture
- Lack of adequate change management
- Training
- Impact of ERP

Corporate culture - According to Turbit (2003) most managers, who have been through an ERP implementation, relate that the most affected part of the implementation is the corporate culture. This is always the most underestimated obstacle to ensure the success of the implementation.

Corporate culture includes:

- The calibre of people that a company recruits. These qualities may include their personal values, skills and habits.
- The manner in which an organisation operates including focus, decision making process, stability and attitude of staff.

To ensure the success of an ERP implementation an organisation is required to adapt its corporate culture. These adoptions include but are not limited to implementing business practices that are enforced and lived by its employees daily (Turbit, 2003). Turbit further states that another dimension to cultural change is the time lines in which the change is made. These mentioned timelines for cultural change will in each instance mean that what is acceptable in one week may not be the case in the subsequent week.

Change management - It is imperative that a change management program is included in the company's implementation strategy (Bhuta, 2001). An organisation is required to be adequately equipped to handle the following issues:

- The fear of failure: There is an audience that will elect to be a bystander in the process for fear of being part of the project failure. This may result in delaying the project timelines.
- Resistance: Staff will resist change to "protect their turf" or even their positions.
- Non-visionaries: There will always be people in the business that do not have a clear understanding of the long-term relevance and importance of the project.

The key to any change management program is that management needs to communicate the importance of the project throughout the organisation (Bhuta, 2001).

Turbit (2003) concurs that management must dedicate efforts to change management. According to Turbit change management is about managing expectations that enable change to transition with minimal effort to smooth the transition. Change management is when people are taken out of their comfort zones and taken on a journey to the intended destination. This process, as stated, is intended to be a journey and not just a message that change is required. This approach to change management is about getting people used to the idea that point C is the real destination even if they thought they were going to point B. Turbit further states that the costs to an organisation need to be considered if a system is forced upon people who feel they have very little ownership. These people will ensure that the new system never gets off the ground or never achieves it full intended potential. In both these instances the organisation will never realise its full return on investment (Turbit, 2003). Change management is tipped by Turbit (2003) to be the most important reason for failure.

Weightman (2003) discusses corporate culture and trying to create a solution incompatible with the company's culture. In the 1990's research found that many companies with ERP projects saw them as a silver bullet that would solve all their problems, even if the „style' of solution wasn't compatible with their corporate culture traditions. An executive might say he or she wants to operate in a globally centralised fashion, to be more like a Wal-

Mart, with the strength and discipline of a global head office. However, this doesn't work if the firm's culture is one of decentralised entrepreneurship. It then can't use technology to force change in the culture of the company. A decentralised structure would be better suited to implement a decentralised ERP application or recognise the enormous change-management mountain it faces.

Training - If training is not correctly managed and planned it may have a major impact on the hidden costs associated with an ERP implementation which may be detrimental to the success of the implementation. Turbit (2003) conducted a survey of organisations that have implemented ERP systems and identified 10-common causes that contributed to the implementation being a disaster. Of these 10-common causes, insufficient training and a lack of adequate change management were mentioned as the major contributors to the implementation being rated as a disaster.

ERP systems tend to either replace old manual systems or a "home-grown" system designed internally specifically for the organisation. These "home-grown" systems, as discussed earlier in this chapter, do not constitute an integrated ERP system. Therefore when an organisation embarks on implementing a new ERP system such as SAP, it constitutes a quantum leap for all areas of the organisation (Turbit, 2003). The entire organisation is required to make considerable transitions from the legacy system with which the employees have been working with for a long period of time. Traditionally the legacy system is what the users are totally comfortable with and the new system may be viewed as being complex and not user-friendly. According to Turbit (2003) transformation is required at both technical and business levels. It may mean that the adoption of the new system is required to be accelerated due to constrained timelines (Turbit, 2003). The adoption may include a change in business processes as well as the tools of the trade.

The audience to include for training is not merely limited to end users. The resources that are required to fulfil a support role are also required to be included in the training process. To this end the IT team will require adequate training to fulfil their support role in the implementation and post-implementation of the ERP system (Turbit, 2003). The

implementation places demands on an existing IT team equipped to ensure that the legacy system is stable and also to ensure that they up-skill themselves on the new systems simultaneously.

Essential to the process is the timing of the training. The sooner training commences the smoother the transition is at the end. Sufficient time needs to be allocated to train the identified business owners and super-users of the system. According to Bhuta (2001), if the users are unable to understand and use the system, the project is a failure even if the team executed everything else perfectly. That is why it is extremely important that adequate time is allocated to end user and super user training. The best approach is the „train the trainer' approach, where the end users are trained by one of their own, someone within the same business unit. Usually the trainers are exposed to the system throughout the implementation cycle. Users should have access to non-technical user documentation and should be shown how to access and use the new system. This approach is successful as the employees being trained will feel more at ease and receptive being trained by „one of their own'. It also releases the IT project team for many of the other tasks they are required for.

Impact of ERP - The benefits of SAP have been discussed, viz; that of integration and online, real time environments. The challenge that one faces is that there is a transition from no integration, interface based systems, to that of seamless integration which creates its own set of difficulties. The quintessence of ERP is the instantaneous outcome a single transaction bears on all relevant data and modules of the system.

Data integrity becomes essential. The migration from manual to automated processes is not a simple task. A new ranking of accountability, responsibility, and communication is now given to the business process owners. Turbit (2003) describes this scenario as if stock is moved from location A to Location B and the information is not put into the system. The system will tell someone to get the material from A and when it is not there, they have to go looking. At the same time it is telling someone else to put new material in B, but B is full. The first person finds the original material in B and logs it into the system. Double the quantity is now in the system again and it doesn't re-order. And so it goes on and everyone is blaming the system.

2.9 SAP ASAP approach to training

This section of the chapter will share with the reader the white paper written by Andre Simcock titled „Proposal for SAP Training and CM for HHEA dd 17/02/2006'. The contents of this paper are relevant in that it clearly outlines the ASAP approach to SAP training. This approach to training is critical in ensuring the success of the training when implementing a new ERP system such as SAP.

Simcock (2006) writes that well received end-user training is a key element that ensures a successful implementation. The goal of implementation training should be to enable the end-user with adequate SAP competency to perform their work with reasonable efficiency at go-live. As SAP is highly integrated process it is important to emphasize the development of knowledge of the new business processes as they relate to SAP defined roles and existing organisational jobs. Therefore the training must be process based, and must highlight the strategic rationale behind the changes and the associated benefits of the new systems functionality. New Millennia created a training road map as depicted in the figure 5 below

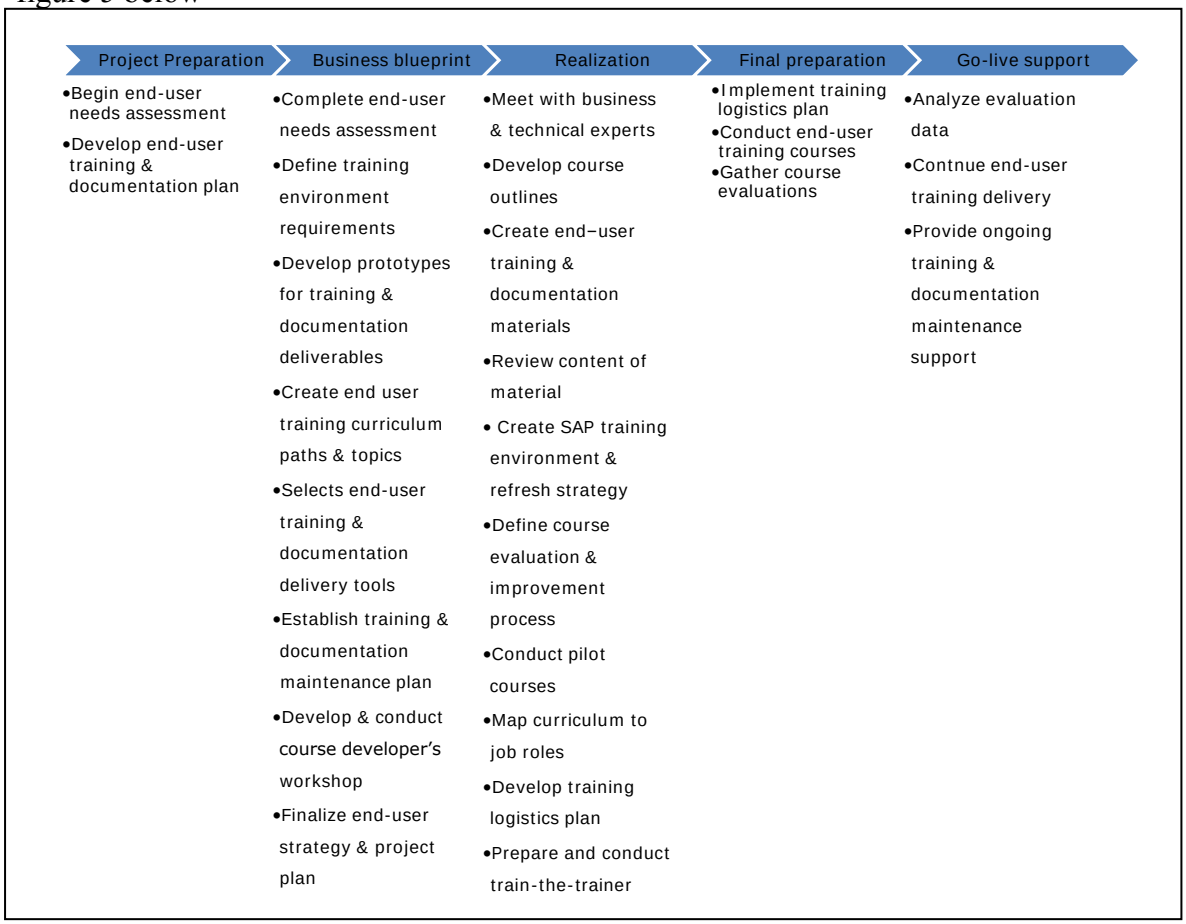

Figure 5: SAP ASAP methodology to end-user training

ASAP methodology is a standard process for implementing SAP. It consists of the five phases as depicted in the figure 4 above; viz:

1. Project preparation: This stage consists of identifying team members and developing strategies of the way forward
2. Business blue-print: This phase consists of identifying the current processes and how SAP is to provide the solution
3. Realisation: This phases consists of implementation of all the business process requirements that have been defined in the blue-print phase
4. Final preparation: It is at this stage that all the end-user testing and training will occur
5. Go-live & support

2.10 Effective adult learning

The following is an extract from Kolb's Learning Style Inventory, as defined by Kolb *et al*., (1979), which includes four learning styles:

1. **Converger** who can be classified as someone who wants to solve a problem and who relies heavily upon hypothetical-deductive reasoning...to focus on specific problems.
2. **Diverger** who can be classified as someone who solves problems by viewing situations from many perspectives and who relies heavily upon brainstorming and generation of ideas.
3. **Assimilator** who can be classified as someone who solves problems by inductive reasoning and ability to create theoretical models.
4. **Accommodator** who can be classified as someone who solves problems by carrying out plans and experiments...and adapting to specific immediate circumstances.

These four style are based upon established learning theories as described by Kolb. The ideas behind assimilation and accommodation originate in Jean Piaget's definition of intelligence as the balance between the process of adapting concepts to fit the external world (accommodation) and the process of fitting observations into the world of existing

concepts (assimilation). Convergence and divergence are the two essential creative processes identified by J.P. Guilford's structure-of-intellect model. (Kolb, 1979).

To determine a person's learning style, the person completes an instrument called Learning-Style Inventory by answering questions contained in the Self-Scoring Inventory and Interpretation Booklet (Kolb, 1979).

Kolb has described the learning process as a four-phase cycle in which the learner: (1) does something concrete or has a specific experience that provides a basis for (2) the learner's observation and reflection on the experience and his or her own response to it. These observations are then (3) assimilated into a conceptual framework or related to other concepts in the learner's past experience and knowledge from which implications for action can be derived; and (4) tested and applied in different situations.

1. **Experiencing** or immersing oneself in the "doing" of a task is the first stage in which the individual, team, or organisation simply carries out the task assigned. The engaged person is usually not reflecting on the task at this time, but carrying it out with intention.
2. **Reflection** involves stepping back from task involvement and reviewing what has been done and experienced. The skills of attending, noticing differences, and applying terms help identify subtle events and communicate them clearly to others. A learner's paradigm (values, attitudes, beliefs) influences whether he or she can differentiate certain events. Vocabulary is also important, since words are necessary for verbalizing and discussing perceptions.
3. **Conceptualization** involves interpreting the events that have been noticed and understanding the relationships among them. At this stage, theory may be particularly helpful as a template for framing and explaining events. Paradigm again influences the interpretive range a learner is willing or able to entertain.
4. **Planning** enables taking the new understanding and translating it into predictions about what is likely to happen next or what actions should be taken to refine the way the task is handled.

The logic of the learning cycle is to make many small and incremental improvements. When many people make these improvements, major improvements result over time. Likewise, when the learning cycle becomes habitual, the result is continual improvement.

Stage I: Concrete Experience

Learning initially occurs when a person encounters a new concrete experience and deals with it in terms of observations, feelings, and reactions. Accordingly, the most profound way to promote Stage I learning is to provide the student with exploratory tools e.g. concrete experiences and materials. Kolb maintains that learners should become actively involved in the exploration of the learning experience if they are to get the most out of it. This can involve drawing up a checklist of things the learner should try to do: actively observing what's going on, producing a log or record of some sort, and formulating appropriate questions.

Stage II: Observation and Reflection

As the student observes the new situation in Stage I, the student adds to or adjusts his or her perceptions based on previous learning. This process compels the student to reflect on past experiences and to think about the current experience as either fitting into previous patterns or not. This is generally acknowledged as the most difficult stage of the Kolb cycle, but is probably the most crucial of all. Students and practitioners should reflect on what they learned, how they learned it, why they learned it, whether the learning experience could have been more effective, and so on. Discussion of these reflections with an instructor can prove extremely helpful, as can peer-to-peer discussions, either informally or at a formal debriefing session of some sort.

Stage III: Concept Formation

If the experience fits a pattern, then the student can form a generalization and a set of concepts to define the situation. As the student develops these concepts and generalizations, his or her thinking includes imagining other discrete concrete experiences that invariably raise new questions. The answers to these questions require further learning

experimentation and the accompanying development of new concepts. Accordingly, the most profound way to promote Stage III learning is by introducing the student to key concepts e.g. subject vocabulary and relationship diagrams.

This stage is very often left out of experiential learning programs, but is extremely important if learners are to gain the maximum possible benefit from such programs. The main object of this stage is to link the actual learning experience with the theories that describe it, and/or with a greater understanding of the theories that the learning experience was designed to illustrate. Again, discussion with an instructor or advisor can prove extremely helpful during this stage of the Kolb cycle, as can discussion with peers.

Stage IV: Testing Implications in New Situations

When the student realises that the answers constructed in Stage III are not necessarily complete, further testing is required. The student proposes new concrete experiments and restarts the learning cycle. Accordingly, the most profound way to promote Phase IV learning is by helping the student formulate new situations to be tested.

Kolb believes that the learner must be involved in the planning of the learning experience if experiential learning is to be fully effective. This can be done in a variety of ways through action planning or preparing a learning contract. The former may involve nothing more than jotting down a set of things to do, or discussing the proposed procedure with the instructor. In either case, it is useful for individual learners to set their own objectives for the action plan. If a formal learning contract is used, this should be drawn up using a standard checklist.

In summary, the four elements are drawn from two dimensions, each of which forms a dialectic and represents the two things that can be done with information. The first is to grasp the information, i.e., to become aware of it. The dialectic lies between grasping information by first-hand experience (concrete experience), which Kolb refers to as apprehension, and grasping by calling up a memory (abstract conceptualization), which

Kolb refers to as comprehension. Apprehension is external; the information is only available in the "here and now." For example, only when you are touching a piece of ice does it feel cold. Comprehension is an internal process and is not bound by the instant of time. The second is to transform the information. Similarly, there is dialectic between the external process of active experimentation and the internalised reflective observation. This transformation of information is the key to creating knowledge and is crucial to understanding that learning is an active process.

Billington (1988) writes that there are seven characteristics of highly effective adult learning. The seven factors found in learning programs that stimulated adult development are:

1. An environment where students feel safe and supported, where individual needs and uniqueness are honoured, where abilities and life achievements are acknowledged and respected.
2. An environment that fosters intellectual freedom and encourages experimentation and creativity.
3. An environment where the faculty treats adult students as peers--accepted and respected as intelligent experienced adults whose opinions are listened to, honoured, appreciated. Such faculty members often comment that they learn as much from their students as the students learn from them.
4. Self-directed learning, where students take responsibility for their own learning. They work with faculty to design individual learning programs which address what each person needs and wants to learn in order to function optimally in their profession.
5. Pacing or intellectual challenge. Optimal pacing is challenging people just beyond their present level of ability. If challenged too far beyond, people give up. If challenged too little, they become bored and learn little. Pacing can be compared to playing tennis with a slightly better player; your game tends to improve. But if the other player is far better and it's impossible to return a ball, you give up, overwhelmed. If the other player is less experienced and can return none of your

balls, you learn little. Those adults who reported experiencing high levels of intellectual stimulation--to the point of feeling discomfort--grew more.

6. Active involvement in learning, as opposed to passively listening to lectures. Where students and instructors interact and dialogue, where students try out new ideas in the workplace, where exercises and experiences are used to bolster facts and theory, adults grow more.
7. Regular feedback mechanisms for students to tell faculty what works best for them and what they want and need to learn--and faculty who hear and make changes based on student input.

In contrast, in learning programs where students feel unsafe and threatened, where they are viewed as underlings, life achievements not honoured, those students tend to regress developmentally, especially in self-esteem and self-confidence. In programs where students are required to take identical lockstep courses, whether relevant to professional goals or not, and where they are often expected to spend several years working on a dissertation that is part of a professor's research project instead of on a topic of their choice, they grow less. In other words, students grow more in student-centred as opposed to faculty-centred programs.

2.11 Research Questions

The literature review has enabled the researcher to identify that there are critical elements to consider when implementing a new ERP system in an organisation. To this end the purposes of implementing an ERP system is intended to improve operational efficiencies and align the IT strategy to the business strategy. In addition to this the impact that training would have on user acceptance is critical to ensuring a successful ERP implementation. To this end the literature review has identified aspects of the ERP implementation in Pick n Pay's finance division that require answering to evaluate the effectiveness of the implementation in improving efficiencies are concerned.

- What is the end-user acceptance to SAP versus the legacy Phase 3 system?
- Is there a possible correlation between demographics, user acceptance and the appropriateness of the SAP training provided to the end user?

- What are the end-user perceptions of the improved efficiencies introduced into the finance division by implementing SAP?

These research questions will be addressed by means of the research design established in chapters 3 and the findings of the research questionnaire delivered in Chapter 4 of this research project.

2.9 Conclusions

The literature review contained in this chapter was not intended to be exhaustive but to introduce the reader hereof to literature that is perceived to be of relevance to this study. This chapter introduces the reader to strategy alignment; systems and what they do; enterprise resource planning (ERP); ERP justification for business; SAP; traps for ERP implementations; the SAP ASAP approach to training and effective adult learning. This literature review will enable the research to be focused on achieving the objectives of this research project and create research questions that require answers to conclude the research.

Chapter 3 covers the research methodology that is applied for the purpose of this dissertation. This includes the development of adopting the correct method of sampling and designing an appropriate research questionnaire that will suitably address the research questions formulated in this chapter.

Chapter 3

Research Methodology

3.1 Introduction

The completion of the literature review and definition of the research questions is followed by the research methodology. The purpose of this chapter is to share with the reader the sampling design which includes the defining the targeted audience and sampling methodology. The research design is reviewed in detail on the development and design of the questionnaire. The detail related to the data collected will be collated, analyzed and discussed in this chapter.

3.2 Sampling Design

Zikmund (2003) indicates that the process of sampling involves any procedure using a small number of items or parts of a whole population to make conclusions regarding the whole population. A researcher is required to make decisions on several stages in the selection of a sample prior to making conclusions of the sample. These stages are according to Cooper and Schindler (2008) and are summarised in Figure 6 below.

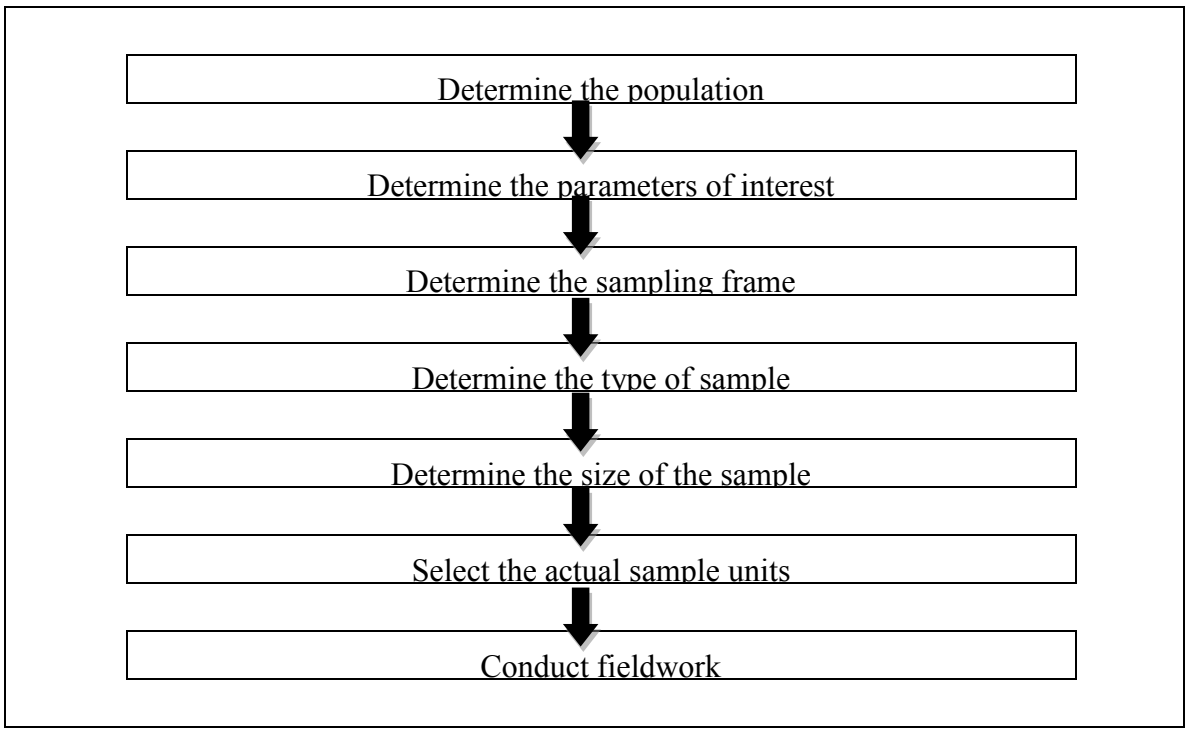

Figure 6: Stages in the selection of a sample (Cooper & Schindler, 2003)

Cooper and Schindler refer to the population as the total collection of elements about which a researcher intend to make inferences. In determination of the population, it was advised by Professor Rembrandt Klopper to limit the research to the Western Cape region. This would enable the research questionnaires to be controlled to ensure that the response rate was acceptable.

According to Cooper and Schindler (2003) the parameters of interest are summary descriptors of variables of interest in the population. Due to the geographic dispersion of the various business units within Pick n Pay it was decided that the sample would be limited to the Western Cape region. To this end the corporate finance division and Western Cape regional support finance division of Pick n Pay was selected as the sample for the purposes of this study.

Cooper and Schindler *et al*., (2003) state that the sampling frame refers to a list of elements from which a sample may be extracted. In consultation with the Aboubaker Jakoet, Pick n Pay Retail Finance Director and recently appointed Chief Financial Officer (CFO) effective 1st April 2011, the sample audience was limited to all finance employees within the finance divisions of corporate and the Western Cape regional support office that were deemed to be of supervisory (even if clerical) and management only.

According to Cooper and Schindler (2003) the members of a sample are selected on a probability basis or by another means. Probability sampling is based on the concept of random selection – a controlled procedure that assures that each population element is given a known nonzero chance of selection. In contrast, non-probability sampling is arbitrary (non-random) and subjective. Each member does not have a known non-zero chance of being included.

There are several types of sampling designs as viewed in the figure 7 below.

Element selection	Representation bias	
	Probability	**Non-probability**
Unrestricted	***Simple random*** Each population element has an equal chance of being selected into the sample	***Convenience*** The sampling procedure used most to obtain those units or people most conveniently available
Restricted	***Systematic*** Selects an element of the population beginning with the random start and following the sampling fraction selects every nth element ***Cluster*** Population is divided into internally homogenous subgroups. Some are randomly selected for further study ***Stratified*** Divides the population into subpopulations or strata and uses simple random on each stratum. Results may be weighted and combined. ***Double*** Process includes collecting data from a sample using a previously defined technique. Based on the information found, a subsample is selected for further study	***Purposive or Judgement*** An experienced individual selects the sample based upon some appropriate characteristic of the sample members ***Quota*** The researcher classifies the population pertinent properties , determines desired proportion of the sample from each class and fixes quotas for each interview ***Snowball*** Initial respondents are selected by probability samples; additional respondents are obtained by referral from initial respondents

Figure 7: Types of sampling designs (Cooper & Schindler, 2003)

This study intends to utilise the non-probability purposive or judgemental sample. Saunders, Lewis and Thornhill (1997) state that a purposive or judgemental sample will best enable the respondents to answer the research questions to achieve the objectives of this study. Furthermore, the retail financial director has also indicated that this approach would be most suited for the purposes of this study.

The total sample size identified totals 40-employees. Of the 40-employees a total of 2 were on leave and therefore did not respond. A total of 38-employees (95%) responded to the questionnaire.

3.3 Research Design

The most important part of the research framework is the method in which data will be collected (Lubbe and Klopper, 2005). There are two sources of data, viz; primary and secondary data. Primary data sources provide an inside view of a particular event or time period. Secondary data source interprets and analyses primary sources. According to Ghauri *et al.,* (1995) secondary sources relevant to the research problem should be reviewed before collecting primary data. These sources include, amongst others, textbooks and other published material, academic as well as organisational journals, newsletters. In the literary review of this research the source of data used is that of secondary data.

Data has to be collected relevant to the study if secondary data is not available to assist in answering the research question is known as primary data (Ghauri *et al.*, 1995). Primary data sources are created by the person that creates the source e.g. interviews, questionnaires, speeches, letters and research data.

3.3.1 Questionnaires

As per Ghauri *et al.,* (1995) the most popular data collection methods are surveys and questionnaire. According to Lubbe and Klopper (2005) a questionnaire is a document that consists of a list of questions that the identified respondents are required to answer. Lubbe and Klopper suggest that open (or unstructured) questions can be used in preliminary surveys to get a feel for the subject. In this instance respondents would enter their responses in their own words only. Alternately one could make use of closed (or structured) questions. This type of question is primarily applied in large-scale data collection. In this instance a respondents will select their responses from alternatives or assign a numerical score or ranking. Likert-type scales (Lubbe and Klopper, 2005) make use of this closed type of question.

According to Cooper and Schindler (2003) there are six response strategies viz;

- Free-response - open-ended questions
- Dichotomous - usually suggests two opposing responses for example a yes or no answer
- Multiple choice - more than two alternatives to choose form

- Checklist - allows the participant to give multiple responses to a single question
- Rating - requires the participant to position each factor on a caparison scale
- Ranking strategy - when relative order of the response is important as the respondent is asked to place items listed in a ranked order.

3.3.2 The Likert scale

Cooper and Schindler (2003) indicate that the Likert scale is the most frequently used variation of the summated rating scale. A respondent is requested to agree or disagree with each statement. The degree of the response is determined by a numeric score. The numeric score is generally on a scale of 1-5 and is represented as follows:

1 Strongly agree

2 Agree

3 Undecided

4 Disagree

5 Strongly disagree

Generally 3 would represent an "undecided" response to cater for respondents that wished to remain neutral in their responses.

3.3.3 Developing the questionnaire

The literature review developed and identified research questions that required responses. This requirement was a precursor to the development of a questionnaire.

As per Lubbe and Klopper (2005) the following criteria would constitute a sound questionnaire:

- Must be complete – exacts all required data including demographic questions at the beginning;
- Must be concise – must short enough to enable the respondent to complete quickly;

- Questions must be relevant;
- Include clear instructions;
- Questions must be precise, unambiguous and easily understandable;
- Question must not be suggestive;
- Primarily makes use of closed-ended questions
- The questions must relate to the objectives of the paper (Lubbe and Klopper, 2005).

The questionnaire consists of three parts and 30-questions, viz;

- Demographics – 9 questions
- Evaluation of the efficiency of the legacy and SAP systems – 12 questions
- Evaluation of the users SAP training experience – 9 questions

A five point Likert style measurement has also been used for part two and three of the questionnaire. This Likert scales is represented as follows:

1 Strongly agree

2 Agree

3 Undecided

4 Disagree

5 Strongly disagree

The research objectives intend to answer the research questions. The first section of the questionnaire is intended to identify the demographics of the sample groups.

The second section of the questionnaire is intended to evaluate the end users responses as to the efficiencies they experienced using a legacy system versus the new SAP system.

The final objective is to understand the impact training had on user acceptance and also whether or not the training contributed to end user adoption of the new SAP system.

3.3.4 Ethical treatment of participants

The ethical treatment of questionnaire participants is a very important subject. Cooper and Schindler (2003) describe that when ethics are discussed in research design, whether data is gathered in an experiment, interview, observation, or survey, the respondent has many rights to be safeguarded. To ensure the rights of the respondent are secured an informed consent form forms part of the questionnaire document. Cooper and Schindler (2003) further state that securing informed consent from respondents is a matter of fully disclosing the procedures of the proposed survey or other research design before requesting permission to proceed with the study.

Permission was obtained from Aboubaker Jakoet, Pick n Pay Retailers (Pty) Ltd financial director and CFO elect effective April 2011 to conduct the research and to send out a questionnaire to the respondents. The sample of the questionnaire and letter of consent was submitted and approved by the Ethics committee at the University of KwaZulu Natal prior to being distributed to the identified respondents. The questionnaire advised the respondents that their participation was fully voluntary and all information was totally confidential.

3.4 Data Collection

As the identified sample group work in the same office complex as the researcher, the decision was taken to conduct the survey via e-mail. Creative Research Systems (2005) indicates that e-mail surveys are economical and quick. They further add that this method of data collection often stimulates higher response levels than ordinary mail reviews. This method of data collection was decided on due to the fact that all the respondents email addresses were known. This method is also easy to use and simple for the respondents to respond to. All the e mail addresses of the participants were supplied by the business. Each respondent was e-mailed a copy of the following documentation on the 13th April 2010:

- A letter that advised them of the purpose of the research
- A letter of consent that was required to be signed by each respondent
- The questionnaire

The documentation was completed and returned by Friday, 30th April 2010.

3.5 Data Analysis

All the answers of the selected respondents is tabulated and presented in figures utilising Microsoft Excel. All amounts are rounded in Excel according to Excel rules. The approach was to firstly identify report in tabular format on the demographics of the respondents. Thereafter the responses were represented as follows:

- Evaluation of efficiency of legacy and SAP system

  Each question was compared to the demographics of the respondents to establish the correlation of demographics and user acceptance

- Evaluation of user SAP training experience

  Each question in this section was compared to the demographics of each respondent. The purpose thereof was the identify the relationship between demographics and the SAP training experience of the respondents

3.6 Limitations

The limitation of this research is that Pick n Pay Retailers consists of numerous finance divisions. There is a total of ten various finance division in the retailing division and only two of such divisions have been included in this research. Therefore the selected respondents cannot be seen to be representative of the entire company.

3.7 Conclusion

The purpose of this chapter to illustrate the practical aspects of the research methodology and design selected and applied for this study. This chapter is structured to introduce the concept of sampling design and the relevant components thereof. Once the correct method of sampling has been identified the reader is introduced to the research design. This section focuses on the questionnaire development and design. The ethical treatment of the survey participants was also discussed. The data collection and data analysis discussion followed. The chapter was concluded by highlighting the limitations in the research methodology. In the chapter to follow the empirical findings of the survey conducted at will be discussed.

Chapter 4

Discussion of Findings

4.1 Introduction

Chapter 3 introduced the research methodology that governed the empirical part of this research undertaken for the purposes of this study. The purpose of this chapter reviews the empirical findings of the research questionnaire completed by the identified sample group in Pick n Pay Retailers finance divisions. The questionnaire was distributed to 40 employees in the finance division. There were 38 responses to the questionnaire which translated to a strike rate of 95% which is perceived to be adequate for the purposes of this study. The structure of this document is to tabulate and statistically express and interpret the data gathered. The purpose of the data is to interpret the responses of the selected respondents. The results hereof will enable the researcher to answer the research questions posed in Chapter 2 and thus achieve the research objectives of this research. This chapter will demonstrate statistical analysis of the data and to make recommendations and conclusions in the final chapter of this research paper.

4.2 Descriptive Statistics

The sample questionnaire was constructed utilizing the Likert scale approach scored from 1–5. To this end the scoring thereof would be represented as follows:

1 Totally agree

2 Partially agree

3 Agree

4 Partially disagree

5 Totally disagree

4.2.1 Descriptive frequency statistics

The tables below depict the demographic statistics of the respondents in Pick n Pay that participated in the questionnaire. The demographic criteria included herein included:

- Age of respondents
- Gender dispersion of respondents
- Race of the respondents
- Language of choice of the respondents
- Qualification of the respondents
- Years of service of the respondents
- Position of the respondents
- Computer Literacy

Table 2 below reflects the age group dispersion of the respondents. The majority of the respondents were in the range of 26-40 (53%) and 41-55 (42%) years of age and only 5% at 55+ years.

Table 2: Age dispersion of respondents

Age	Frequency	%	Valid %	Cumulative %
-25	0	0%	0%	0%
26 – 40	20	53%	53%	53%
41 – 55	16	42%	42%	95%
55+	2	5%	5%	100%
Total	**38**	**100**	**100**	

Table 3 below includes the gender dispersion of the respondents. The female respondents comprised 21 (55%) and the males 17 (45%) of the total sample group.

Table 3: Gender dispersion of respondents

Gender	Frequency	%	Valid %	Cumulative %
Male	17	45%	45%	45%
Female	21	55%	55%	100%
Total	**38**	**100**	**100**	

Table 4 below reflects the race of the respondents. Of the respondents 19 (50%) are White, 16 (42%) Coloured, 2 (5%) Black and only 1 (3%) Indian.

Table 4: Race dispersion of respondents

Race	Frequency	%	Valid %	Cumulative %
Black	2	5%	5%	5%
Coloured	16	42%	42%	47%
Indian	1	3%	3%	50%
White	19	50%	50%	100%
Total	**38**	**100**	**100**	

Table 5 below reflects the various languages of the respondents. The majority (82%) of the respondents were English speaking whilst the remainder (18%) were Afrikaans speaking.

Table 5: Language dispersion of respondents

Language	Frequency	%	Valid %	Cumulative %
English	31	82%	82%	82%
Afrikaans	7	18%	18%	100%
Xhosa	0	0%	0%	100%
Zulu	0	0%	0%	100%
Other	0	0%	0%	100%
Total	**38**	**100%**	**100%**	

Table 6 below reflects the various qualifications and education levels of the respondents. These results were somewhat dispersed in that the majority of the respondents were matrics (42%) whilst 58% of the respondents were possession of a post graduate degree.

Table 6: Qualification dispersion of respondents

Qualification	Frequency	%	Valid %	Cumulative %
High School	16	42%	42%	42%
Technical Diploma	5	13%	13%	55%
Degree	12	32%	32%	87%
Masters Degree	1	3%	3%	89%
Doctoral Degree	0	0%	0%	89%
Other	4	11%	11%	100%
Total	**38**	**100%**	**100%**	

Table 7 below reflects the year's service of the respondents. The majority of the respondents have been employed in Pick n Pay for a period longer than 15 years (47%).

Table 7: Years service dispersion of respondents

Years Service	Frequency	%	Valid %	Cumulative %
0 – 2	5	13%	13%	13%
2 – 5	8	21%	21%	34%
5 – 10	5	13%	13%	47%
10 – 15	2	5%	5%	53%
15+	18	47%	47%	100%
Total	**38**	**100%**	**100%**	

Table 8 below reflects the management positions of the respondents. The majority of the respondents are middle management down (81%). Senior management comprised 13% and executive management only 5%.

Table 8: Management position dispersion of respondents

Position	Frequency	%	Valid %	Cumulative %
Clerical	8	21%	21%	21%
Junior Management	13	34%	34%	55%
Middle Management	10	26%	26%	82%
Senior Management	5	13%	13%	95%
Executive Management	2	5%	5%	100%
Total	**38**	**100%**	**100%**	

Table 9 below reflects the computer skills proficiency levels of the respondents. Only 3% of the respondents considered their computer skills to be be low a verage whils t 8% considered their skills to be exceptional. The majority of the respondents were of the view that their computer skills were average and above.

Table 9: Computer skills dispersion of respondents

Computer Skills	Frequency	%	Valid %	Cumulative %
Below Average	1	3%	3%	3%
Average	22	58%	58%	61%
Above Average	12	32%	32%	92%
Exceptional	3	8%	8%	100%
Total	**38**	**100%**	**100%**	

4.3 Comparison of descriptive statistics

The comparative descriptive statistics are displayed in various formats below. Use is made of table s for the significant findings and the strategic results will be represented in this section. The data collected will be presented accordingly to answer the research questions. These are represented as follows:

- User responses to Phase 3 and SAP
- Possible c orrelation between demographics, user a cceptance a nd the appropriateness of the SAP training provided to the end user based on responses
- User responses regarding th eir perception of the im proved e fficiencies introduced into the finance division by implementing SAP

4.3.1 Responses to Phase 3 and SAP

The tables below reflect the responses received related to the use of Phase 3 and SAP.

Table 10: Responses related to user-friendliness

Questions	Totally Agree	Partially Agree	Agree	Partially Disagree	Totally Disagree
Phase 3 is more user friendly than SAP	0.00%	18.42%	10.53%	21.05%	50.00%
Phase 3 was more user friendly	0.00%	10.53%	10.53%	23.68%	55.26%
SAP is user friendly	44.74%	23.68%	15.79%	7.89%	7.89%

Table 10 above reflects the 3 questions that were posed regarding the user friendliness of of the Phase 3 legacy system versus the new SAP system. These questions were cross referencing in nature in that they tested the consistency of the responses albeit posed in another manner. The responses reveal that the results produced clearly indicate that 71.05% of the respondents disagree that Phase 3 legacy system is more more user friendly than SAP. This response is support by the following two questions where the responses validate this view. A total of 78.94% respondents disagreed that the Phase 3 legacy system was more use friendly and 84.21% of the respondents agreed that SAP is in fact user-friendly. The results of the responses to the 3 question above are not contradictory and therefore lend merit to the interpretation thereof.

Table 11: Responses related to data reliability

Questions	Totally Agree	Partially Agree	Agree	Partially Disagree	Totally Disagree
Phase 3 data was always reliable	5.26%	7.89%	21.05%	26.32%	39.47%
SAP information is always reliable	18.42%	55.26%	7.89%	13.16%	5.26%

Table 11 above reflects that 2 questions were posed to the respondents regarding the reliability of the information generated by the 2 systems. A total of 67.59% of the respondents agreed that the data from the Phase 3 legacy system was always reliable. Only 34.21% of the respondents did not agree that the Phase 3 legacy system information was reliable.

The responses as to whether SAP information was reliable generated varied responses. Only 18.42% of the respondents totally agreed that the SAP information is always reliable. A total of 81.58% of the respondents were convinced that the SAP information is always reliable. These responses were consistent with the former question on the Phase 3 legacy system. Therefore these 2 questions did not precipitate contradictory responses in that respondents agree that phase 3 data was not always reliable and that SAP information is always reliable. Respondents inferred a low confidence in the Phase 3 legacy system data whilst they inferred a higher confidence level in the data from newly implemented SAP system.

Table 12: Responses related to data accuracy

Questions	Totally Agree	Partially Agree	Agree	Partially Disagree	Totally Disagree
SAP data is accurate	21.05%	47.37%	15.79%	13.16%	2.63%
SAP provides a single truth in that the data is accurate	21.05%	42.11%	21.05%	7.89%	7.89%

Table 12 above reflects the responses received regarding the accuracy of the SAP data. The objective of these 2 questions was to test whether the responses regarding the accuracy of the SAP data was answered consistently. In both of these questions 21.05% of the respondents totally agreed that the SAP data is accurate. In both instance 84.21% of the respondents agreed that the SAP data is accurate whilst 15.79% of the respondents did not agree that the SAP data was accurate.

4.3.2 Age dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between age dispersion and user acceptance.

Table 13: Age dispersion responses related to user-friendliness

Question	Rating	Age			Total
		26 - 40	41 – 55	55+	
Phase 3 is more user friendly than SAP	Totally agree				
	Partially agree	7.89%	10.53%		18.42%
	Agree	5.26%	5.26%		10.53%
	Partially disagree	10.53%	5.26%	5.26%	21.05%
	Totally disagree	28.95%	21.05%		50.00%
Total		**52.63%**	**42.11%**	**5.26%**	**100%**

In order to infer the causality that age may have on the respondents adopting the new SAP system, the question as to whether Phase 3 was more user-friendly than SAP was selected. Table 13 reflects the responses received in the age dispersion whereby respondents agreed SAP was more user friendly than the Phase 3 legacy system comprised 26-40 (75%), 41-55 (63%) and 55+ (100%). Table 13 does not conclusively provide sufficient evidence to establish a correlation between age and user acceptance.

Table 14: Age dispersion responses related to data reliability

Question	Rating	Age			Total
		26 - 40	41 – 55	55+	
Phase 3 data was always reliable	Totally agree		2.63%	2.63%	5.26%
	Partially agree	2.63%	2.63%	2.63%	7.89%
	Agree	10.53%	10.53%		21.05%
	Partially disagree	15.79%	10.53%		26.32%
	Totally disagree	23.68%	15.79%		39.47%
Total		**52.63%**	**42.11%**	**5.26%**	**100%**

Table 14 reflects the responses related to the question as to the reliability of the Phase 3 legacy system data. The responses have been represented according to the age dispersions included in the research questionnaire. The responses received in the age dispersion where the respondents do not agree that Phase 3 data was always reliable are represented as 26-40 (75%) and 41-55 (63%). Only 100% of the respondents aged 55+ agreed that Phase 3 legacy system data was always reliable. It may be inferred that new system adoption may be slower with the older generations.

Table 15: Age dispersion responses related to data accuracy

Question	Rating	Age			Total
		26 - 40	41 - 55	55+	
SAP data is accurate	Totally agree	16%	5%		21%
	Partially agree	24%	24%		47%
	Agree	8%	3%	5%	16%
	Partially disagree	5%	8%		13%
	Totally disagree		3%		3%
Total		**53%**	**42%**	**5%**	**100%**

Table 15 reflects the responses received from the respondents that responded to the question to the question as to whether SAP data is accurate or not. These respondents represent the age dispersion responses as 26-40 (90%), 41-55 (75%) and 55+ (100%). These responses infer that the majority of the respondents did agree that SAP data is accurate. Tables 13 to 15 do not conclusively infer a correlation between the age of the users and user acceptance.

4.3.3 Gender dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between age dispersion and user acceptance.

Table 16: Gender dispersion responses related to user-friendliness

Question	Rating	Gender		Total
		Male	Female	
Phase 3 is more user friendly than SAP	Totally agree			0%
	Partially agree	11%	8%	18%
	Agree		11%	11%
	Partially disagree	16%	5%	21%
	Totally disagree	18%	32%	50%
Total		**45%**	**55%**	**100%**

The responses reflected in the table 16 indicate that 76% males and 67% of the females did not agree that the phase 3 data was more user friendly than SAP. It may be inferred from the above that user friendliness of the systems is gender dependent.

Table 17: Gender dispersion responses related to data reliability

	Rating	Gender		Total
		Male	Female	
Phase 3 data was always reliable	Totally agree	5%		5%
	Partially agree	8%		8%
	Agree	8%	13%	21%
	Partially disagree	13%	13%	26%
	Totally disagree	11%	29%	39%
Total		**45%**	**55%**	**100%**

The data in the table 17 reflects the gender dispersion responses related to the reliability of the data. The data reflects that only 47% of the males and 24% of the females agreed that the SAP data was accurate. Almost double the male respondents are of the view that the SAP data is accurate. The sample group is equally male and female. The male respondents therefore agree more with the SAP data.

Table 18: Age dispersion responses related to data accuracy

Question	Rating	Gender		Total
		Male	Female	
SAP data is accurate	Totally agree	11%	11%	21%
	Partially agree	21%	26%	47%
	Agree	11%	5%	16%
	Partially disagree	3%	11%	13%
	Totally disagree		3%	3%
Total		**45%**	**55%**	**100%**

Table 18 reflects the responses received related to the age dispersions groups. The respondents responded as to the accuracy of the SAP data. Of the respondents, 43% of the male and 42% of the female agreed to an extent that the SAP data was in fact accurate.

The results of tables 16 to 18 do not conclusively reveal that user acceptance is affected by gender. Therefore once can conclude that there is no correlation between gender and user acceptance.

4.3.4 Race dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between race dispersion and user acceptance.

Table 19: Race dispersion responses related to user-friendliness

Question	Rating	Race				Total
		Black	Coloured	Indian	White	
Phase 3 is more user friendly than SAP	Totally agree					
	Partially agree		13%		5%	18%
	Agree		5%		5%	11%
	Partially disagree		5%	3%	13%	21%
	Totally disagree	5%	18%		26%	50%
Total		**5%**	**42%**	**3%**	**50%**	**100%**

Table 19 reflects race dispersion responses related to whether Phase 3 legacy system is more user-friendly than SAP. The responses received indicate that 100% of the Blacks, 50% Coloureds, 100% Indians and 79% of the Whites do not agree that Phase 3 is more user friendly than SAP.

Table 20: Race dispersion responses related to data integrity

Question	Rating	Race				Total
		Black	Coloured	Indian	White	
Phase 3 data was always reliable	Totally agree		3%		3%	5%
	Partially agree				8%	8%
	Agree		11%		11%	21%
	Partially disagree	3%	8%		16%	26%
	Totally disagree	3%	21%	3%	13%	39%
Total		**5%**	**42%**	**3%**	**50%**	**100%**

Table 20 reflects the responses received from the race dispersion groups related to the reliability of the data. The responses received reflect that 100% of the Blacks, 69% of the Coloureds, 100% Indians and 58% of the Whites agree that that Phase 3 legacy system data was not always reliable.

Table 21: Race dispersion responses related to data accuracy

Question	Rating	Race				Total
		Black	Coloured	Indian	White	
SAP data is accurate	Totally agree	3%	13%		5%	21%
	Partially agree	3%	21%	3%	21%	47%
	Agree		3%		13%	16%
	Partially disagree		5%		8%	13%
	Totally disagree				3%	3%
Total		**5%**	**42%**	**3%**	**50%**	**100%**

Table 21 reflects the responses received related to the accuracy of the SAP data. The respondents primarily agreed that the SAP data is accurate. The responses received in the race dispersion agreed were 100% Blacks, 82% Coloureds, 100% Indians and 79% Whites. Tables 19 to 21 do not conclusively infer that their is a correlation between user acceptance and race.

4.3.5 Language dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between language dispersion and user acceptance.

Table 22: Language dispersion responses related to user-friendliness

Question	Rating	Language		Total
		English	Afrikaans	
Phase 3 is more user friendly than SAP	Totally agree			
	Partially agree	16%	3%	18%
	Agree	5%	5%	11%
	Partially disagree	21%		21%
	Totally disagree	39%	11%	50%
Total		**82%**	**18%**	**100%**

Table 22 reflects that 75% of English speaking and 57% of Afrikaans speaking respondents did not agree that Phase 3 was more user friendly than SAP.

Table 23: Language dispersion responses related to data reliability

Question	Rating	Language		Total
		English	Afrikaans	
Phase 3 data was always reliable	Totally agree	5%		5%
	Partially agree	5%	3%	8%
	Agree	13%	8%	21%
	Partially disagree	24%	3%	26%
	Totally disagree	34%	5%	39%
Total		**82%**	**18%**	**100%**

Table 23 reflects that 71% of English speaking and 43% of Afrikaans speaking respondents did not agree that Phase 3 data was reliable.

Table 24: Language dispersion responses related to data accuracy

Question	Rating	Language		Total
		English	Afrikaans	
SAP data is accurate	Totally agree	18%	3%	21%
	Partially agree	37%	11%	47%
	Agree	13%	3%	16%
	Partially disagree	11%	3%	13%
	Totally disagree	3%		3%
Total		**82%**	**18%**	**100%**

Table 24 above reflects that the 84% English speaking and 86% Afrikaans speaking respondents agree that the SAP data is accurate.

Only 7 of the respondents were Afrikaans speaking. The Afrikaans respondents represented only 18% of the total sample. As the Afrikaans respondents sample is small, their responses are deemed to be quite significant when establishing relationships. Tables 22 to 24 above do infer that there is a relationship between language dispersion and user acceptance. The Afrikaans respondents responded negatively to the user-friendliness of SAP system and reliability of the SAP data.

4.3.6 Qualifications dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between the qualifications dispersion of the respondents and user acceptance.

Table 25: Qualification dispersion responses related to user-friendliness

Question	Rating	Qualification					Total
		Matric	Diploma	Degree	Masters	Other	
Phase 3 is more user friendly than SAP	Totally agree						
	Partially agree	8%	3%	5%	3%		18%
	Agree	3%	3%			5%	11%
	Partially disagree	11%		11%			21%
	Totally disagree	21%	8%	16%	3%	3%	50%
Total		**42%**	**13%**	**32%**	**5%**	**8%**	**100%**

Table 25 reflects that 75% matrics, 60% with diplomas, 83% degrees, 50% masters and 34% of other qualifications did not agree that Phase was more user friendly than SAP.

Table 26: Qualification dispersion of responses related to reliability of Phase 3 data

Question	Rating	Qualification					Total
		Matric	Diploma	Degree	Masters	Other	
Phase 3 data was always reliable	Totally agree			3%	3%		5%
	Partially agree	3%		5%			8%
	Agree	11%	3%	5%		3%	21%
	Partially disagree	11%	3%	11%		3%	26%
	Totally disagree	18%	8%	8%	3%	3%	39%
Total		**42%**	**13%**	**32%**	**5%**	**8%**	**100%**

Table 26 reflects that 69% matrics, 80% diploma, 58% degree, 50% masters an 67% of other qualifications do not agree that the Phase 3 data was always reliable.

Table 27: Qualification dispersion responses related to accuracy of SAP data

Question	Rating	Qualification					Total
		Matric	Diploma	Degree	Masters	Other	
SAP data is accurate	Totally agree	5%	5%	8%		3%	21%
	Partially agree	21%	5%	16%	3%	3%	47%
	Agree	5%		8%	3%		16%
	Partially disagree	8%	3%			3%	13%
	Totally disagree	3%					3%
Total		**42%**	**13%**	**32%**	**5%**	**8%**	**100%**

Table 27 above reflects that 75% matrics, 80% diploma 100% degree and 67% of other qualifications agree that SAP data is accurate.

What can be inferred from the tables 25 to 27 is although there may not be a strong correlation between qualification and user acceptance, there appears to be a trend that

implies that the more qualified respondents appear to be "holding on" to the legacy system and over a period of time will take convincing before relying entirely on SAP.

4.3.7 Length of service dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between the length of service dispersion of the respondents and user acceptance.

Table 28: Length of service dispersion responses related to user-friendliness

Question	Rating	Years of service					Total
		0 - 2	2 - 5	5 - 10	10 - 15	15+	
Phase 3 is more user friendly than SAP	Totally agree						
	Partially agree	3%	3%			13%	18%
	Agree		3%	3%		5%	11%
	Partially disagree		3%	3%	3%	13%	21%
	Totally disagree	11%	13%	8%	3%	16%	50%
Total		**13%**	**21%**	**13%**	**5%**	**47%**	**100%**

Table 28 reflects the responses received as per the year's service dispersion. The responses received that did not agree that Phase 3 was more user-friendly than SAP were 0-2 (80%), 2-5 (75%), 5-10 (80%), 10-15 (100%) and 15+ (61%).

Table 29: Length of service responses related to Phase 3 data reliability

Question	Rating	Years of service					Total
		0 - 2	2 - 5	5 - 10	10 - 15	15+	
Phase 3 data was always reliable	Totally agree					5%	5%
	Partially agree		3%		3%	3%	8%
	Agree		8%	3%	3%	8%	21%
	Partially disagree	5%	5%	3%		13%	26%
	Totally disagree	8%	5%	8%		18%	39%
Total		**13%**	**21%**	**13%**	**5%**	**47%**	**100%**

Table 29 reflects the responses received related to the reliability of the Phase 3 data. The respondent that did not agree that the Phase 3 data was always reliable were represented in the length of service dispersions as 0-2 (100%), 2-5 (50%), 5-10 (80%) and 15+ (61%).

Table 30: Length of service dispersion responses related to SAP data being accurate

Question	Rating	Years of service					Total
		0 – 2	2 - 5	5 - 10	10 - 15	15+	
SAP data is accurate	Totally agree	5%	3%	5%		8%	21%
	Partially agree	5%	11%	5%	5%	21%	47%
	Agree	3%	5%	3%		5%	16%
	Partially disagree		3%			11%	13%
	Totally disagree					3%	3%
Total		**13%**	**21%**	**13%**	**5%**	**47%**	**100%**

Table 30 reflects the responses received related to the accuracy of the data per the length of service dispersion. The respondents in this length of service dispersion that responded that agreed that the SAP data was accurate were 0-2 (100%), 2-5 (88%), 5-10 (100%), 10-15 (100%) and 15+ (72%). The responses in tables 28 to 30 would infer that the respondents that had the least length of service were more positive to the adoption of the new SAP system. The longer serving respondents were more dispersed in their responses and not entirely convinced as to the accuracy and reliability of the new system versus the legacy Phase 3 system.

4.3.8 Managerial position service dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between the managerial position dispersion of the respondents and user acceptance.

Table 31: Managerial position dispersion responses related to user-friendliness

Question	Rating	Position	Total

		Clerical	Junior	Middle	Senior	Executive	
Phase 3 is more user friendly than SAP	Totally agree						
	Partially agree	8%	3%	3%	3%	3%	18%
	Agree		8%	3%			11%
	Partially disagree	3%	3%	5%	8%	3%	21%
	Totally disagree	11%	21%	16%	3%		50%
Total		**21%**	**34%**	**26%**	**13%**	**5%**	**100%**

Table 31 reflects the responses per the managerial dispersion related to the user friendliness of the Phase 3 versus SAP. The respondents from the managerial dispersion that did not agree that Phase 3 was more user-friendly than SAP were clerical (67%), junior management (63%), middle management (69%), senior management (80%) and executive management (50%).

Table 32: Managerial position dispersion responses related to reliability of Phase 3 data

Question	Rating	Position					Total
		Clerical	Junior	Middle	Senior	Executive	
Phase 3 data was always reliable	Totally agree					5%	5%
	Partially agree			3%	5%		8%
	Agree	5%	8%	3%	5%		21%
	Partially disagree	3%	18%	5%			26%
	Totally disagree	13%	8%	16%	3%		39%
Total		**21%**	**34%**	**26%**	**13%**	**5%**	**100%**

Table 32 reflects the responses per managerial position of the respondents related to the reliability of the Phase 3 data. The respondents in the managerial position dispersion that did not agree that that Phase 3 data was always reliable were clerical (75%), junior management (77%), middle management (80%) and senior management (20%). All of the executive management agreed that the Phase 3 data was always reliable.

Table 33: Managerial position responses related to the accuracy of SAP data

Question	Rating	Position					Total
		Clerical	Junior	Middle	Senior	Executive	
SAP data is accurate	Totally agree	3%	5%	11%	3%		21%
	Partially agree	8%	18%	11%	8%	3%	47%
	Agree	3%	5%	3%	3%	3%	16%
	Partially disagree	5%	5%	3%			13%
	Totally disagree	3%					3%
Total		**21%**	**34%**	**26%**	**13%**	**5%**	**100%**

Table 33 reflects the responses per managerial position related to the accuracy of SAP data. The respondents that agreed that the SAP data is accurate are represented by clerical (63%), junior management (85%), middle management (88%), senior management (80%) and executive management (100%).

Tables 31 to 33 above infer that across all levels of management there is an appetite for the new SAP system. As with the years of service in the previous section herein, it would appear that the executive management are not entirely convinced that the legacy Phase 3 system did not produce accurate and reliable data. The executive management are also convinced that the new system data is in fact accurate. This may be as a result of the fact that the clerical and more junior employees utilize the system the more frequently than executive management and therefore have a higher appetite for new system adoption.

4.3.9 Computer literacy dispersion and user acceptance

The following tables reflect the responses from selected questions that may infer the relationship between the computer literacy dispersion of the respondents and user acceptance.

Table 34: Computer literacy dispersion responses related to user-friendliness

Question	Rating	Computer Literacy			Total
		Average	Above	Excellent	
Phase 3 is more user friendly than SAP	Totally agree				
	Partially agree	13%	5%		18%
	Agree	5%	5%		11%
	Partially disagree	13%	5%	3%	21%
	Totally disagree	26%	18%	5%	50%
Total		**58%**	**34%**	**8%**	**100%**

Table 34 reflects the responses related to Phase 3 being more user friendly than SAP per the computer literacy dispersion group. The respondents per computer literacy dispersion that disagreed that Phase 3 was more user friendly than SAP were average (68%), above average (69%) and excellent (100%).

Table 35: Computer literacy dispersion responses related to reliability of Phase 3 data

Question	Rating	Computer Literacy			Total
		Average	Above	Excellent	
Phase 3 data was always reliable	Totally agree		5%		5%
	Partially agree		3%	5%	8%
	Agree	11%	11%		21%
	Partially disagree	21%	3%	3%	26%
	Totally disagree	26%	13%		39%
Total		**58%**	**34%**	**8%**	**100%**

Table 35 reflects the responses related to Phase 3 data always being reliable per the computer literacy dispersion group. The respondents per the computer literacy dispersion that did not agree that Phase 3 data was always reliable were average (82%), above average (46%) and excellent (33%).

Table 36: Computer literacy responses related to the accuracy of SAP data

Question	Rating	Computer Literacy			Total
		Average	Above	Excellent	
SAP data is accurate	Totally agree	8%	8%	5%	21%
	Partially agree	34%	11%	3%	47%
	Agree	5%	11%		16%
	Partially disagree	8%	5%		13%
	Totally disagree	3%			3%
Total		**58%**	**34%**	**8%**	**100%**

Table 36 reflects the responses related to accuracy of the SAP data received from the computer literacy dispersion group. The respondents from the computer literacy dispersion group that agreed that the SAP data was accurate were average (81%), above average (85%) and excellent (100%).

Tables 34 to 36 infer that there is no strong correlation between computer literacy and the user acceptance of the new system. In fact the average skilled person appears to be more receptive to change than the higher skilled respondents.

4.3.10 Appropriateness of SAP training

The following figures reflect the responses from selected questions that may infer the appropriateness of the SAP training to the end user. The objective of this section is to evaluate the end users responses to the SAP training they received.

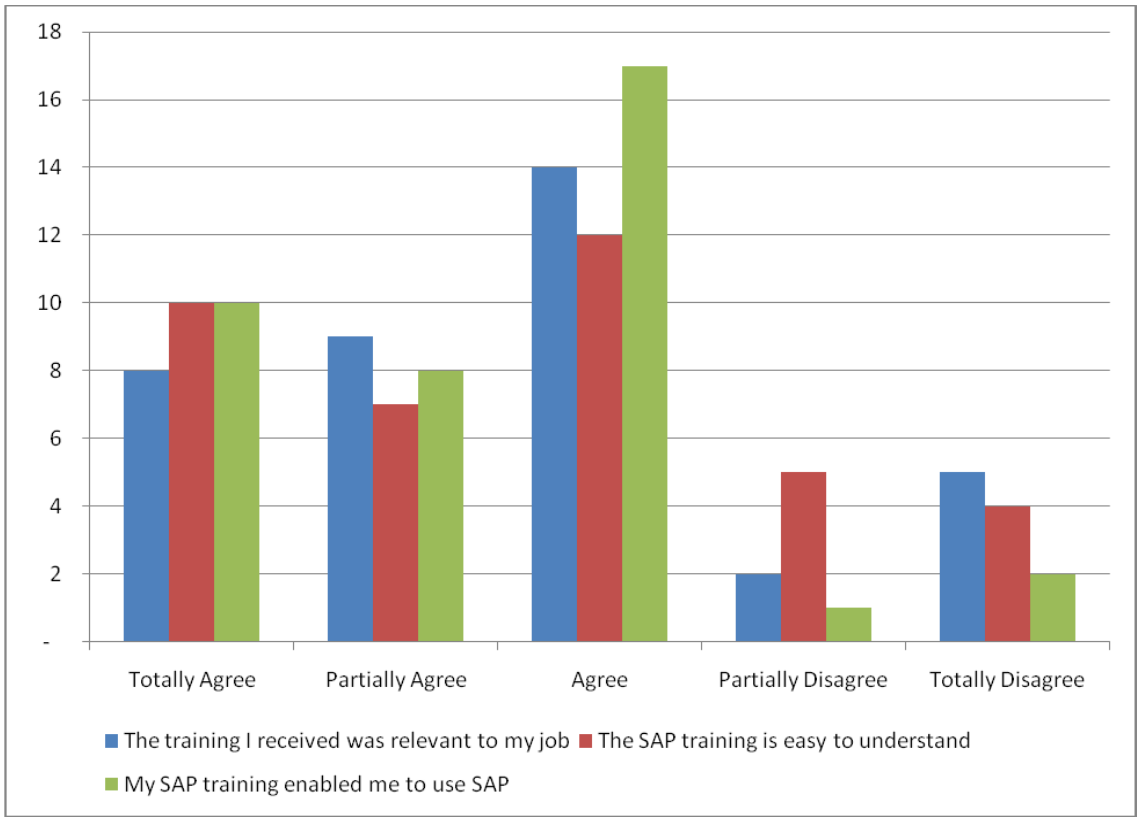

Figure 8: Responses received related to 'relevance of training to job and 'ease of understanding' and 'enabling end user to use SAP'

Figure 8 indicates that 81.58% of the respondents agreed that the training that they received was in fact relevant to their jobs. A mere 18.42% disagreed with this statement. There is most definitely a similar response pattern regarding the ease of understanding of the training delivered and the responses to the SAP training enabling end users to use SAP. These results would infer that the training was relevant to the end users job and was easy to understand and most certainly enabled the end user to use SAP as intended.

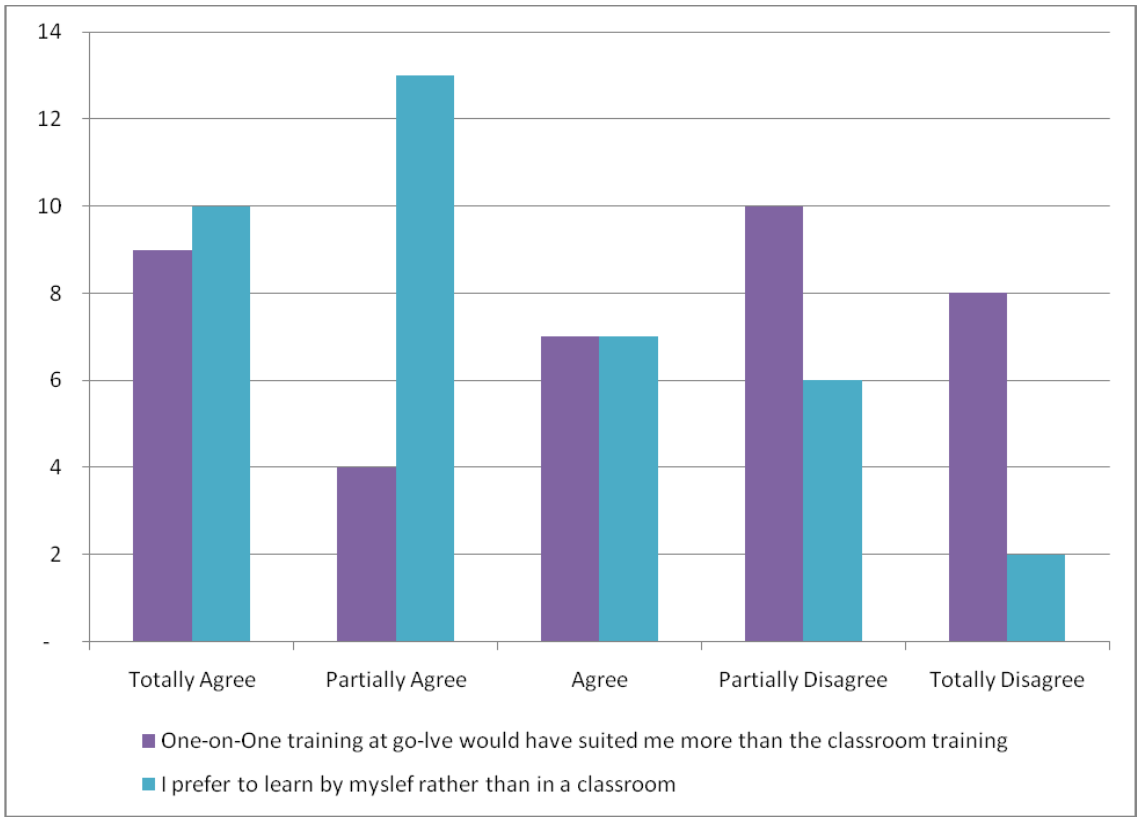

Figure 9: Responses related to 'classroom versus one-on-one training'

Figure 9 indicates that 78.95% of the respondents prefer to learn by themsleves as opposed to classroom training. How ever, only 52.63% of the respondetns would ha ve pr eferred one-on-one tr aining at go -live. The re sults above would infe r that user s do not prefer clasroom training and a re more re ceptive to one -on-one tra ining. This would im ply that they would be assured of special attention and have their personal training needs addressed on a one-on-one basis rather than in a classoom environment.

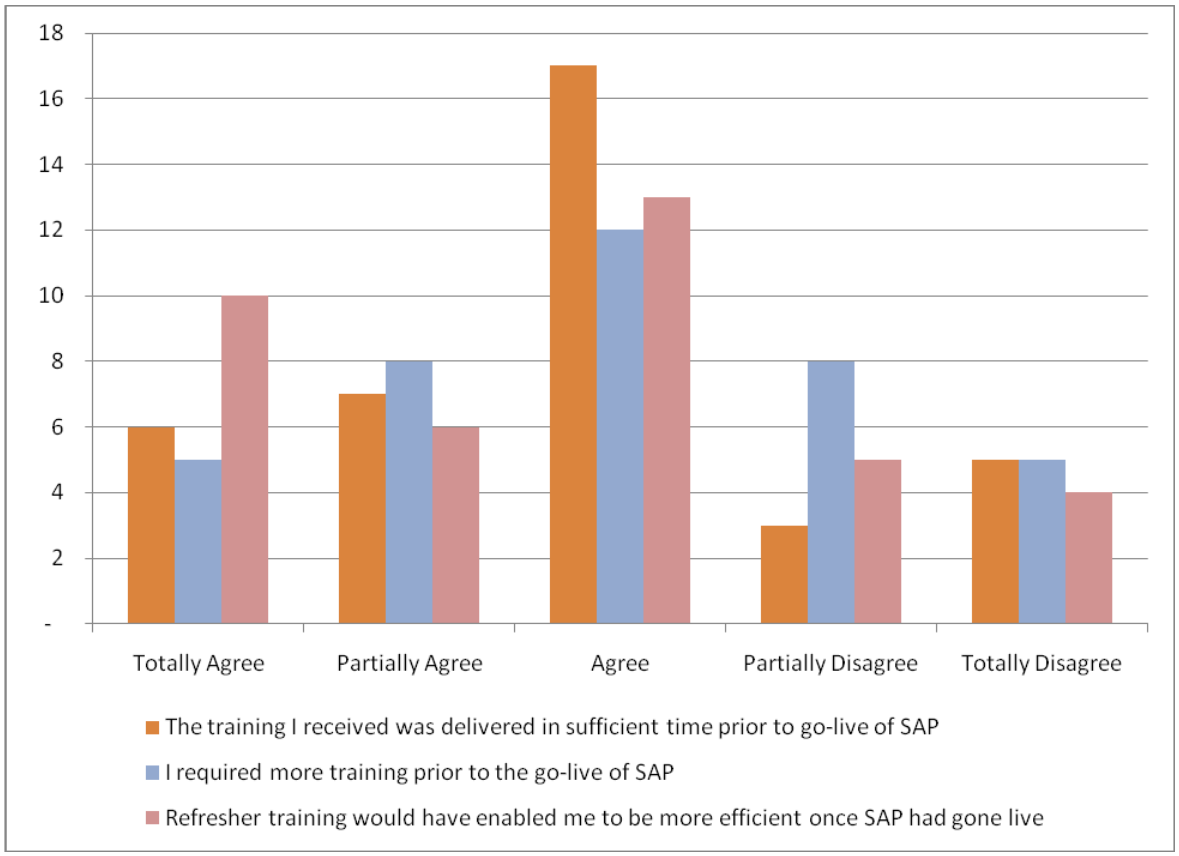

Figure 10: Responses related to 'timing of training for go-live'

Figure 10 above reflects the responses recieved to the questions of whether training was received in sufficient time prior to go-live; whether end users required more training prior to go live and whether end users required refresher training once SAP had gone live. These questions were pertinent to the timing of training prior to go-live of SAP. The responses to these 3 questions have been depicted in the same figure to enable the reader to identify whether in fact there is a relatonship between these questions. To this end the responses received infer that the respondents do agree (78.95%) that the training that they received was in fact delivered in time prior to go-live of SAP. The respondents also agreed (65.79%) that they required more SAP training prior to go-live and 76.32% of the respondents agreed that refresher tainin g would have enabled them to be more efficient once SAP had gone live. These results infer that the training was delivered timeously but attention should have been given to refresher training once SAP had in fact gone live.

4.3.11 Improvement in efficiencies introduced in to the finance division by implementing SAP

The following figure reflects the responses from selected questions that relate to the perceived improved efficiencies introduced in the finance department by implementing SAP. The objective of this section is to establish whether or not SAP has in fact improved efficiencies in the finance divisions identified for the purpose of this research.

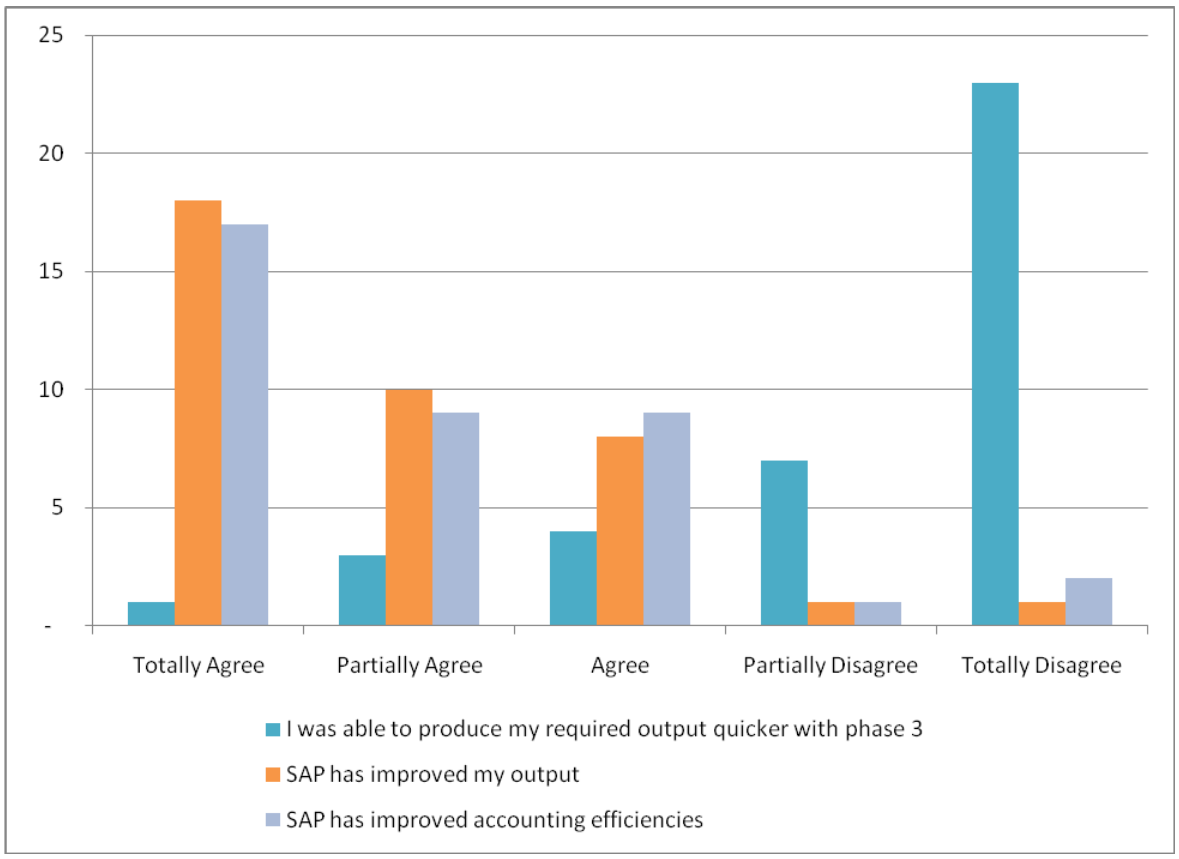

Figure 11: Responses related to 'improved efficiencies'

Figure 11 above reflects the responses to the 3 questions that relate to the establishing whether or not efficiencies have been improved by implementing SAP. The purpose of the 3 questions in the above table are intended to measure the responses regarding generating end user output with the Phase 3 legacy system and also establish whether or not the respondents were of the view that SAP had in fact improved their output.

Only one of the respondents totally agreed that they were able to produce their required output quicker with Phase and the same percentage totally disagreed that the SAP had in fact improved their output. It can be inferred that this one person is not in favour of the SAP system insofar as increasing productivity are concerned.

A total of 21.05% of the respondents agreed that they were in fact able to produce their required output quicker with Phase 3 legacy system. An overwhelming 78.95% of the respondents did not agree that they were able to produce their output quicker with Phase 3 legacy systems. Of these respondents 60.53% of the respondents totally disagreed with Phase 3 legacy system enabling them to produce their output quicker.

A total of 94.74% of the respondents agree that SAP has improved their output. Of these respondents, 47.37% totally agree that SAP has improved their output. It may be inferred from the above responses that the majority of the respondents agree that their output has improved with the introduction of SAP. Therefore the above responses infer that the implementation of SAP has improved their efficiencies in the finance divisions as identified for the purposes of this research.

4.3.12 Conclusion

This chapter has represented the responses relevant to answering the research questions and thus achieving the research objectives of this study. These research questions being:

- What is the end-user acceptance of SAP versus the legacy Phase 3 system?
- Is the there a possible correlation between demographics, user acceptance and the appropriateness of the SAP training provided to the end user?
- What are the end-user perceptions of the improved efficiencies introduced into the finance division by implementing SAP?

The responses received in this chapter have contributed towards inferring certain conclusions from the respondents. Chapter 5 will discuss the responses relative to the literature survey and provide recommendations and conclude this dissertation.

Chapter 5

Recommendations & Conclusion

5.1 Introduction

The results of this research study have provided valuable results for a blue-chip retailing organisation that has implemented SAP in its business. This implementation was to replace a legacy system that had been in existence for nearly 25-years. In this final chapter of the research project the researcher intends to draw attention to highlighted results of Chapter 4 and conclude inferences derived from these findings as well as providing guidelines to organisations that intend to implement a new ERP system such as SAP.

This chapter will conclude the research project and further recommendations for additional research will be included herein. Recommendations will also be put forth for management and to take cognizance for further SAP implementations in the organisation to ensure that the high level of success is maintained to improve efficiencies

5.2 Have the research questions been answered?

The results of the findings do confirm that the research question formulated for the purposes of this research project have been adequately addressed. The responses received from the identified sample group were sufficient to deliver adequate results that would enable the researcher to make certain inferences and recommendations that would assist an enable an organisation to exact the required value in implementing tan ERP system such as SAP in the organisation. The research questions being:

- What is the end-user acceptance of SAP versus the legacy Phase 3 system?
- Is the there a possible correlation between demographics, user acceptance and the appropriateness of the SAP training provided to the end user?
- What are the end-user perceptions of the improved efficiencies introduced into the finance division by implementing SAP?

The discussion under section 5.3 will demonstrate to what extent the research results enable the researcher to answer them.

5.3 Discussion

Chapter 1 of this study described that Pick n Pay had developed an in-house system referred to internally in the organisation as Phase 3. The purpose of this system was merely to manage inventory. To this end the system would enable the buyers to manage their stock on hand, cost price, selling prices, gross margins, rebates and other discounts associated with inventory. This system or "tool" was not intended for any division of the business other than for the buying divisions within Pick n Pay. As a result of the decentralised structure of the business, each region would manage their own phase 3 system and data would vary from buying region. Pick n Pay did not have any ERP system that could be utilised by other divisions of the business to produce MIS reporting whatsoever. This system was designed to manage inventory only. The system was not an integrated system and was updated by batches at certain points in time. This meant that the data was not real time data.

According to Strub (2003), if interfaces are not designed and functioning correctly, maintaining information across systems will not be possible and will result in anomalies. This is very apparent in the pick n Pay environment with the legacy system that was replaced. Jakovljevic (2000) state that an ERP system is the current generation of resource planning systems. These systems replace the "islands of information with a singular packaged software solution which integrates all traditional management functions. This integrated solution dispenses with the data integrity anomalies experienced in the organisation.

The challenge of the legacy system was that data integrity was questionable. This was confirmed by the research question of „Phase 3 data was always reliable'. Only 67.59% of the respondents did not agree that the data was in fact reliable. The fact that 2/3 of key finance end-users did not agree that the data was reliable is sufficient evidence to

demonstrate that accuracy and data integrity were in fact prime motivation to implement an integrated ERP system.

The responses related to *SAP* „information is always reliable' and „SAP data is accurate' were 81.57% and 84.21% of the respondents were in agreement with these statements. These responses clearly infer that the respondents are confident with the reliability and accuracy of the SAP data that they are accessing. One of the reasons for implementing an ERP system is to ensure that the same data is available to all business units in the organisation and the output of such data will be the same. This ensures accuracy and gives the system reliance. If the end-users believe the data to be accurate and reliable then new system adoption will occur quicker and the organisation will be in a position to leverage their huge investments sooner rather than later.

The research compiled regarding a possible correlation between demographics and end-user acceptance did not yield any significant results. One could infer from the question of „Phase 3 data was always reliable' related to age that the older generations appeared to be more inclined to the legacy system. Their adoption of the new system might be interpreted in relation to the other responses as being "slower" to adopt. It must also be noted that these 2 respondents collectively have 30-years of service and are senior and in executive management. Their use of the legacy Phase 3 system is somewhat limited and their responses should be discounted by virtue of this fact. In closing, the research on a correlation between demographics and user acceptance did not yield sufficient evidence to enable the researcher to make a conclusive statement on the relationship.

The literature review in Chapter 2 outlines that the SAP ASAP approach to training was most effective in implementing SAP in the business. To this end Pick n Pay adhered to this approach. The appropriateness of the training yielded positive results that warranted discussion. Figure 1 in Chapter 4 indicates that responses received related to the relevance of SAP training and ease of understanding enabling end-users to us SAP. The majority of the responses received indicate that the training was designed to be very job specific and was easy to understand, thus inferring the training to be user-friendly. The ASAP

approach represented in figure 4 of Chapter 2 clearly indicates that the training must be designed according to the end-user requirements and should be easy to understand. The responses received infer that this objective was achieved with an element of success.

The ASAP approach indicates that the end-user training should occur in the realization phase. This phase is prior to go-live of the new ERP system. The responses reflected in figure 3 of Chapter 4 indicate that the majority of the respondent agreed that the training was received in sufficient time prior to go-live. It must be noted that in the same figure a large number of the respondents indicated they required more training prior to SAP going live and also would have preferred refresher training once SAP had in fact gone live. The respondents go on to confirm as per the responses reflected in figure 2 of Chapter 4 that they would have also preferred to have on-on-one training once the SAP system had gone live as per phase 5 of the ASAP approach.

According to Billington (1998) there are seven characteristics of highly effective adult learning. One of these characteristics includes self directed learning. The responses received to the question related to one-on-one training suggest that this approach would have suited the end-users more than classroom learning. This approach would only have been more effective at and post go-live of SAP.

The third part of the research was designed to establish whether or not the new ERP system in fact improved end-users efficiencies as opposed to the legacy Phase 3 system. The benefits of SAP are discussed in the literature review contained in Chapter 2 of this research project. These benefits include:

- Integration
- Online real time environment
- Research and development (not relevant for purposes of this research project)
- Support (not relevant for purposes of this research project)

The benefit of integration is designed to provide a single application architecture that significantly reduces the required interfaces. SAP provides seamless integration throughout all its modules and therefore data is real-time once a transaction is concluded. This integration is intended to remove any forms of duplication in the data and thus provide "one-truth".

This data is then available for sharing. Figure 4 of Chapter 4 reflects the responses received to the questions of:

- I was able to produce my required output quicker with Phase 3
- SAP has improved my output
- SAP has improved accounting efficiencies

The responses that were received to these questions clearly evidence that the respondents agree that the new SAP system has improved their output and also improved accounting efficiencies in the finance divisions where they are employed. The results produced by this research have certainly satisfied the researcher that the research questions posed in Chapter 2 of the literature review have been adequately addressed.

5.4 Guidelines

The results of the research have made certain inferences and the responses received from the respondents enable guidelines to be suggested when implementing an ERP system into an organisation. These include, but are not limited to:

- As per Robson (1997) determining the strategy of an organisation is the most significant management making decisions. Robson also state that aligning Information Systems strategies and business strategies will contribute to the success of the organisation. To this end it is imperative that the business leaders identify and align these strategies before selecting and implementing a new ERP system
- Shulteiss and Sumner (1998) define the characteristics of a Management Information System (MIS). These characteristics include boundaries, outputs and

inputs, methods of converting inputs to outputs and system interfaces. Robson (1997) define the levels and planning horizons of management activities. These levels include operational planning and control which is focused on the short term; management control and tactical planning which is focused on the medium term and strategic planning which is focussed on the long term of an organisation. An ERP system must be able to service all these levels of management and planning and provide an Information System that enables managers to review operational, tactical and strategic planning activities in the form of a Management Information System.

- According to Strub (2003) if interfaces are not designed and functioning correctly, maintaining information across systems will not be possible and will result in anomalies. It is imperative that the ERP system that is selected is fully integrated across the business to ensure data integrity.
- Turbit (2003) writes of the „traps of ERP implementations'. These include but are not limited to corporate culture, lack of adequate change management and training. When considering the corporate culture of an organisation the length of service, qualifications and the period that the end users have been utilising a legacy system must be considered. The longer a legacy system has been in place the more change management will be required before implementing a new ERP system. These factors will also impact the approach to training that is going to be adopted. The training must be relevant and end user focused according to their actual job functions. Simcock (2006) writes about the SAP ASAP training approach. This approach has proven to be successful in ensuring that training achieves the desired outcomes, which are end user acceptance and adoption.
- Kolb *et al.,* defines 4 learning styles being converger, diverger, assimilator and accommodator. Developing the correct training approach will also depend on the end users learning style. The demographics of the end users to be trained will influence their learning style and this factor must be considered when developing training methodologies. The training that is to be delivered must be structured according to the target audience. This audience may vary according to demographics. This includes one-on-one training, classroom training,

comprehensive learner guides, refresher training, on-the-job-training. This varied approach to training the is audience specific will contribute to successful end user acceptance and accelerate the adoption of e new system

5.5 Recommendations

Pick n Pay embarked on an implementation that was to replace a legacy system that was a way-of- life for most long serving end-users. What is evident from the literature review contained in Chapter 2 and the findings documented in Chapter 4 of this research project is that implementation of SAP could be measured a "text-book" approach to implementing SAP in the business. Training that was delivered to the end-users conformed to the ASAP approach. Thus Pick n Pay was able to reap the positive benefits of the end-user adoption of the SAP finance module. The areas of opportunities that Pick n Pay should address to ensure improved end-user adoption would be in the following areas of training:

- Figure 2 in Chapter 4 reflects that the majority of the end-users would have preferred to have one-on-one training at go-live
- Figure 3 in Chapter 4 indicates that the majority of the respondents agreed that they required more training prior to the go-live of Sap
- Figure 3 in Chapter 4 of this research project reflects that the majority of the end-users would have preferred refresher training once SAP had gone live.

The responses reflected above indicate that Pick n Pay should consider conducting refresher courses just before the actual go-live of SAP. As this is a new system it is essential that end-users are afforded more training to boost their confidence levels.

In addition to the proposed refresher training, it is recommended that Pick n Pay also introduce one-on-one post go-live training for the end users. It is recommended that executive management only receive one-on-one training for SAP as they tend to not be "heavy-users" of the system. Executive management tend to rely on their subordinates to generate MIS reports. Heavier users (clerical to middle management) should receive one-

on-one training in slightly bigger groups. It is recommended that a facilitator be assigned to the user group to work with them for a period of time and only attend to their practical requirements with a live system as a means of training.

5.6 Conclusion

In conclusion it is the researcher's opinion that the implementation of the finance SAP modules in Pick n Pay has delivered the desired results in that there has been a improvement in the efficiencies in the finance divisions that were included as part of this research project. The critical success factors that have contributed to the success of the implementation include, but are not limited to the organisation aligning there is strategy to their business; selecting a ERP system that is fully integrated across the organisation and applying the appropriate training strategies and methodologies to the varied demographics to ensure user acceptance and adoption of the new SAP system in Pick n Pay.

The study has answered the research question posed in Chapter 2 in that the end user acceptance of the new SAP system has been established; that there is a correlation that can be inferred between demographics, user acceptance and the appropriateness of the SAP training provided to the end user; and finally that there are improved efficiencies introduced into the finance division by implementing SAP.

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Appendix A - Letter of introduction

UNIVERSITY OF KWA-ZULU NATAL
SCHOOL

Dear Respondent,

I, **Shannon David Whittle** am a MBA student at the Graduate Business School of the University of KwaZulu-Natal. You are invited to participate in a research project entitled Effectiveness of SAP Finance module implementation in Pick n Pay Retailers. The aim of this study is to: Evaluate the SAP Finance module implemented in Pick n Pay and the correlation of demofigureics, SAP training and user acceptance contributing to improved efficiencies within the finance division.

Through your participation I hope to understand whether or not the implementation approach to employ for the SAP finance module was effective. The results of the focus group are intended to contribute to evaluating the anticipated efficiencies in the Pick n Pay finance information.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey/focus group. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Name of School, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about 15-minutes to complete. I hope you will take the time to complete this survey.

Sincerely

Investigator's Signature : _____

Date : _____

UNIVERSITY OF KWAZULU-NATAL
SCHOOL

Appendix B - Letter of informed consent

MBA Research Project
Researcher: SD Whittle (021 – 658 1053)
Supervisor: Professor Rembrandt Klopper (021 – 851 4496)
Research Office: Ms P Ximba 031-2603587

CONSENT

I……(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT **DATE**

……

Appendix C – Ethical clearance approval

From: Christel Haddon [mailto:Haddonc@ukzn.ac.za]

Sent: 15 April 2010 11:21 AM

To: Shannon Whittle

Cc: rklopper@gmail.com; Mihalis Chasomeris; Wendy Clarke

Subject: Ethical Clearance Application Approval S Whittle 204514502

Dear Shannon

Your Ethical Clearance application Ref GSB27/10 was approved on the 14 April 2010 and the form will be forwarded to the Research Office.

You may proceed with your research (conducting your questionnaires/interview)

NB

1. If you at any stage during your research you decide to send questionnaires to a company/organisation where you have not obtained a gatekeepers letter a letter will be required and needs to be submitted to my office.
2. If you change your questionnaire you must submit a copy of the new questionnaire to the committee for approval
3. If you change the title of your research please advise the administrator at your school.

Once I receive the official letter from the research Office I will post you a copy

Kind Regards

Christel Haddon

Assistant Faculty Officer (Post Graduate)

Faculty of Management Studies

Westville Campus,

University of KwaZulu - Natal

Tel : 031 - 260 1553

Fax : 031 - 260 1312

E-mail : haddonc@ukzn.ac.za

Appendix D - Research Questionnaire

Effectiveness o f SAP F inance Module I mplementation i n P ick n P ay Retailers

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Finance regarding SAP Finance module. The information and ratings you provide us will go a long way in helping us identify possible shortcomings in the implementation of SAP Finance. The questionnaire should only take 10-15 minutes to complete. Make sure not to skip any questions. Thank you for participating.

Kindly tick on the applicable answer.

Personal Details

1. Age.

- ○ 25 or under
- ○ 26-40
- ○ 41 - 55
- ○ 56 or older

2. Gender.

- ○ Male
- ○ Female

3. Race.

- ○ Black
- ○ Coloured
- ○ Asian
- ○ White

4. Language Choice (Speak, Read & Write).

- ○ English
- ○ Afrikaans
- ○ Xhosa
- ○ Zulu
- ○ Other

6. What is the highest level of qualification completed?

- ○ High School or Equivalent
- ○ Technical Diploma or Equivalent
- ○ Degree
- ○ Masters Degree
- ○ Doctoral Degree
- ○ Other

7. Years Service.

- ○ 0 – 2
- ○ 2 - 5
- ○ 5 - 10
- ○ 10 - 15
- ○ 15+

8. Which best describes your position in Finance?

- ○ Clerical
- ○ Junior Management
- ○ Middle Management
- ○ Senior Management
- ○ Executive Management

9. How would you rate your computer skills.

- ○ Below Average
- ○ Average
- ○ Above Average
- ○ Exceptional

Evaluate Efficiency of Legacy & SAP System

Purpose of this section is to establish the view of users of the SAP finance module. Kindly ensure that you mark your answers on a scale of 1 – 5.

1 – Totally agree

2 – Partially agree

3 – Agree

4 – Partially disagree

5 – Totally disagree

1. Phase 3 is more user friendly than SAP.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

2. I would not have changed computer systems if it were my choice.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

3. I was able to produce my required output quicker with Phase 3.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

4. Phase 3 was more user-friendly.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

5. Phase 3 data was always reliable.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

6. SAP is user friendly.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

7. SAP has improved my output.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

8. SAP information is always reliable.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

9. SAP is a good investment.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

10. SAP data is accurate.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

11. SAP has improved accounting efficiencies.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

12. SAP provides a single truth in that the data is accurate.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

Evaluate User SAP Training Experience

The purpose of this section is evaluate the end user SAP training experience pre and post implementation. As per the previous section, select your answer on a scale of 1 – 5.

1. The training I received was relevant to my job function.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

2. The training I received was delivered in sufficient time prior to go-live of SAP.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

3. The SAP training easy to understand.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

4. I required more training prior to go-live of SAP.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

5. My SAP training enabled me to use SAP.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

6. One-on-one Training at go-live would have suited me more than classroom training.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

7. Refresher training would have enabled me to be more efficient once SAP had gone live.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

8. I prefer to learn by myself rather than in a classroom.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

9. The SAP process was adequate and met my expectations.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5

Appendix E - Ethical Clearance Letter

UNIVERSITY OF
KWAZULU-NATAL
University of KwaZulu-Natal
Research Office
Govan Mbeki Centre
Westville Campus
University Road
Chiltern Hills
Westville
3629
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Fax No: +27 31 260 2384
E-mail : naidoos4@ukzn.ac.za

19 April 2010

Mr S Whittle
3 Ceres Road
Bergvliet
CAPE TOWN
7945

Dear Mr Whittle

PROTOCOL: Effectiveness of SAP Finance Module Implementation in Pick n Pay Retail
ETHICAL APPROVAL NUMBER: HSS/0192/2010 M: Faculty of Management Studies

In response to your application dated 16 April 2010, Student Number: **204514502** the Humanities & Social Sciences Ethics Committee has considered the abovementioned application and the protocol has been given **FULL APPROVAL**.

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Professor Steve Collings (Chair)
HUMANITIES & SOCIAL SCIENCES ETHICS COMMITTEE

SC/sn

cc: Prof. R Klopper
cc: Mrs. C Haddon

DATA CAPTURED
2009 -05- 07
MRS C HADDON

Appendix F – Concept Matrix

Concepts / References	Effective adult learning	SAP ASAP Approach to training	Traps of ERP implementations	SAP - Benefits	SAP - Background	ERP justification for business
Ghuari *et al.,* (1995)						
www.picknpay.co.za						
Robson W (1997)						
Thompson and Strickland (2001)						
Bhuta (2001)			✓			
Shultheis and Sumner (1988)						
Oxford dictionary 2010						
Jakovljevic (2000)				✓	✓	✓
Haag *et al.,* (2005)						✓
Strub (2003)				✓		
Turbit (2003)			✓			
Weightman (2003)			✓			
Simcock (2006)		✓				
Henke (1996)	✓					
Kolb *et al.,* (1979)	✓					

Concepts / **References**	Data collection	Questionnaires	Research design	Sampling design	Effective adult learning
Zikmund (2003)				✓	
Cooper & Schindler (2003)		✓		✓	
Lubbe & Klopper (2005)		✓	✓		
Ghuari *et al.,* (1995)		✓	✓		
Creative research systems (2005)	✓				
Billington (1988)					✓
Kolb (1985)					✓