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Viability of an Electronic Cash Management System for Fuel Retailers in Inanda and Phoenix

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Abstract

Many prospective fuel retailers are turning away from the industry due to the high cash volumes and the risks associated with cash management. Due to the regulation of the retail fuel price the profit margins are small. Therefore cash flow management is extremely important as fuel prices are adjusted monthly and cash needs to be readily available to make payments to the fuel suppliers.

The cycle of cash from the point of sale system until the money reflects in the bank account can take several days. This affects the cash flow and is critical at the end of month fuel orders especially when there is a fuel price increase.

Cash notes in circulation have continued to grow even despite the advent of electronic fund transfers. With service stations now being opened in areas were the inhabitants were regarded as “un-bankable” cash is still the primary means of trade.

Security of cash and the security of those handling cash is a deterrent to the opening of businesses that deal with large volumes of cash notes. Anytime a human being touches cash there is a built-in level of inefficiency and the potential for loss.

The aim of the study will be conducted into the viability of an electronic drop safe system within the retail fuel outlets in the Phoenix and Inanda areas.

A sample of 35 fuel retail sites was drawn from the area with a population of 39 across all fuel brands. Data collection was done via a researcher administered questionnaire that was developed by the researcher. Face to face interviews were used as questions are based on cash security were asked.

The respondents’ results revealed that they perceive real benefits to be offered by the electronic cash management system with respect to reconciliation and cash flow efficiencies.

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Chapter 1 Introduction

1.1 Introduction

The fuel industry is a growing sector in South Africa. With more citizens having access to business opportunities there has been an overall growth in the number of fuel retailers in South Africa.

Fuel retail outlets have started opening in townships as there is a growing need in these areas. Cash is still the preferred instrument of payment and the handling and security processes that are currently being used are inefficient and have loop-holes that can be exploited.

This is a research study that will be based on the retail fuel outlets cash handling procedure.

1.2 Problem Statement

Many prospective fuel retailers are turning away from the industry due to the high cash volumes and the risks associated with cash management. Due to the regulation of the retail fuel price the profit margins are small. Therefore cash flow management is extremely important as fuel prices are adjusted monthly and cash needs to be readily available to make payments to the fuel suppliers.

The cycle of cash from the point of sale system until the money reflects in the bank account can take several days. This affects the cash flow and is critical at the end of the month fuel orders especially when there is a fuel price increase. Smart, et.al (2004) said, “Without adequate cash to pay obligations on time, to fund operations and growth, and to compensate owners, the firm will fail.”

Cash notes in circulation have continued to grow even despite the advent of electronic fund transfers. According to the South African Reserve Bank annual report (2010/2011), there is approximately R72.7 billion in circulation as of March 2011.

The banknotes in circulation represent the nominal value of all banknotes held by the public and commercial banks but exclude the cash on hand at the South African Reserve Bank.

With service stations now being opened in areas were the inhabitants were regarded as “un-bankable” cash is still the primary means for trade.

Security of cash and the security of those handling cash is a deterrent to the opening of businesses that deal with large volumes of cash notes. According to Deposita Systems (2011) “Anytime a human being touches cash there is a built-in level of inefficiency and the potential for loss.”

The focus of the study will be conducted into the viability of an electronic cash management system within the retail fuel outlet.

1.3 Motivation for the Study

The use of cash notes is increasing based on a 6.4% increase in banknote circulation from 2010 to 2011 financial year (Annual Report: Reserve Bank 2010/2011). This brings along added risks either by staff theft, robberies, and clerical errors. Most retailers use traditional drop safes that require 2 or more staff members to supervise each other or for one to manually count the cash and then hand over to the second person.

Using the traditional drop safes, clients usually get credited 2-3 days later after the cash has been collected. The currently cash handling process is fraught with inefficiencies and loopholes that could result in major financial losses. Human interaction with cash money can lead to counting errors at the till point and at handover to supervisors. Fraudulent note detection and secure storage of cash are some of the inefficiencies experienced.

This study will investigate if an electronic cash management system would be able to eliminate or alleviate the problems associated with manual cash handling procedures based on the data received from the respondents.

1.4 Focus of the Study

The focus of the study has been the testing of the viability of electronic cash management systems for the fuel retail industry in the Phoenix and Inanda areas. The research instrument is self-administered since the questions relate to the cash security of the business. Most respondents would not be willing to share this information over the telephone or on an internet based questionnaire. The questionnaire therefore needed to be administered during face to face interviews with managers or owners. The resources needed to fulfil this on a national basis would be unrealistic so the study was conducted in Phoenix and Inanda.

1.5 Limitations

Identifying limitations of the study will enable future researchers to improve on these areas. Electronic cash management system is a new technology and sources of literary review based on previous studies undertaken are very limited.

The research focusses on a small geographical area north of Durban. Research was not performed in a metro area. The security needs of metro areas may differ from the current area of study. The research requires information about the respondent's cash handling processes. The release of cash handling information by the respondents may cause them to question the study as it may pose a breach of security. The nature of information required in the questionnaire resulted in a slow process of face to face interviews. Some respondents did not want to participate due to the topic of cash handling and cash logistics.

This research also focusses on the viability of adopting new technology rather than integration of a system with an existing process that is already in place in the fuel retailer.

The cost and finance structure of an electronic cash management system varies, a cost benefit analysis was not included as this may be performed as a specific business case study.

1.6 Research Questions

Is the use of electronic cash management systems viable for fuel retail outlets?

- Would electronic cash management systems reduce inefficiencies in administrative work and reconciliations?
- Would electronic cash management systems improve the cash flow of the business?

1.7 Objectives

The main aim of the study is to find if using an electronic cash management system would be beneficial to the business in terms of security, administrative work and cash flow.

The objectives of the study are as follows:

- To evaluate the viability of developing an electronic cash management system.
- To establish an acceptance of the electronic cash management system by the staff.
- To evaluate the financial and operational viability based on the clients perceptions.

1.8 Proposed Methodology

The research methodology is discussed by considering the data collection strategies, research design, sample design and proposed analysis for the study.

A quantitative approach using self- administered questionnaire was used to gather the data from the respondents. Frequency analysis, non-parametric correlation and regression analysis were used to determine the relationships between the measured variables. All 39 sites in the area under investigation were contacted and requested to participate in the study. Of these, 35 sites were willing to participate. A self-administered physical questionnaire was developed by the researcher and presented to the owners and managers of the fuel retail sites.

The research methodology will be discussed in detail in Chapter Three.

1.9 Chapter outline

The research is made up of five chapters.

Chapter One: is the overview of the study and outlines structure of the forthcoming chapters.

Chapter Two: is a literature review which provides a theoretical background of the study. The literature review will explain the traditional cash handling process and then the electronic cash handling process. This chapter also provides a business environment analysis using Porters five force model, PEST analysis and SWOT analysis to establish the viability of developing/marketing the electronic cash management system.

Chapter Three: is a review of the research methodology employed in this study to assess the viability of electronic cash management systems for the fuel retailers. It explains the data collection strategies and research design methods.

Chapter Four: is a statistical analysis of the data obtained by the methods used in chapter 3. The data is input into a statistical software package, SPSS, for in-depth analysis using frequencies and correlation techniques.

Chapter Five: is the discussion of results and interpretation of the data output from the statistical software package. The researcher provides recommendations and proposals for further studies. A conclusion for the study is also provided.

1.10 Summary

This introductory chapter has provided the framework for the study into the viability of electronic cash management systems. Each chapter is discussed and the concept of electronic cash management system is introduced. The current cash handling processes are inefficient due to a number of staff that is in contact with the money and lack of counterfeit note detection procedure/technology used. A study in 2011 by Corporate Safe Specialists shows that “The two most serious cash handling issues to retail stores were cash shrinkage from internal theft and inefficient cash handling (64% and 63% respectively).” This study will aid the decision on the viability of the electronic cash handling solution.

The next chapter provides the literature review for the models related to strategy.

2. Literature Review

2.1 Introduction

According to the South African Reserve Bank, the value of banknotes in circulation in the year ended March 2011 increased by 6.41% to R72.7 billion from R68.3 billion in the 2009/10 financial year. (buanews.gov.za).

Customers particularly in emerging markets remain cash focused in the making of day-to-day purchases, despite the rapid growth of electronic payment systems.

The concept of money has been around since humans found it either convenient or necessary to trade. A banknote or as it is sometimes called bill or note is a type of negotiable instrument that the bank makes payable to the bearer on demand that is used as money.

Since cash notes were lighter to transport and easier to produce than precious metal coins, cash notes have become easier for the criminals to reproduce and steal. Counterfeiting and the theft of money have been known since before the introduction of paper money.

In the early development of money, people found that money was particularly susceptible to theft and loss, especially when accumulated, and the idea of banks to provide secure environments came into being. The fact that banks continue to exist is a direct result of money's vulnerability to theft. The physical transporting of funds has always been one of the most susceptible actions.

“Any touching of cash money by human beings has an element of inefficiency and the potential for loss. (Deposita Systems)”

2.2 The Retail Cash Environment

Cash is a form of liquid asset of a business. The term ‘cash’ refers to the banknotes and coins that a business has on hand that is readily available. (Coyle: 2000). Cash is needed for daily business operations. Having access to cash allows a degree of flexibility to the business to make decisions on expenditure.

Making the best use of the business resources will maximise profit which is the goal of a business. Proper management of cash will help achieve this goal. In the International Journal of Finance and Economics (José: 2008) states “basic cash management involves developing and undertaking administrative measures aimed at establishing the optimal level of cash, that would allow the company to make and receive payments in such a way that the normal operations of the company are preserved.”

While having cash is important, the cost of holding cash is also an important aspect that needs consideration. Cash can provide a buffer during difficult economic times but what about too much cash. Cash stored in an onsite safe does not generate any revenue. There is a loss of interest or interest paid when cash is borrowed. With cash in a safe there are opportunity costs and holding costs. “Having cash locked up creates high opportunity costs.” (Zink: 2011)

According to research performed by The Asian Banker: “Cash inflow, particularly cash deposits over the counter, is a key cost driver as it creates work duplication - it is processed at the counter, again in the back office to decide whether to dispatch surplus funds to the Cash-Centre, and again in the Cash-Centre itself.” Duplication of processes for checking and double checking increases the inefficiency and cost of the cash handling process. Additional checking introduces more handovers and discrepancy resolution will also reduce efficiency.

Discrepancy resolution of cash handovers can also lead to disputes and poor staff morale. “Employee morale and customer goodwill are also assets. Where theft is rampant or crime presents a physical danger, both employee morale and customer

relations suffer." (Gardner: 1988). According to Ivan Israelstam from labour law management "Employers frequently know for certain that serious misconduct has occurred but cannot prove which employee or employees are responsible." This leads to negative employee sentiment and a reduction in trust between employees.

Resistance has been defined as "the action of opposing something that you disapprove or disagree with" and "the ability to resist; esp: the inherent capacity of a living being to resist untoward circumstances" (Mish: 2003). If there is a resistance to technology from employees there may be a reduction in profits and productivity. (Bennis: 1969) stated that "organizational development requires an organization to adapt and be flexible."

Employees need to feel that the new technology would help them to better perform their jobs. (Davis: 1989) termed this as "perceived usefulness," and is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance." Adoption of new technology also depends on it user friendliness. The electronic cash management system needs to be simple to operate to allow maximum use of the system with minimal training. (Davis: 1989) refers to this as "perceived ease of use," which he defines as "the degree to which a person believes that using a particular system would be free of effort." The employees must find the electronic cash management system easy to use and add value to their responsibilities. This will assist with employee acceptance of the electronic cash management system.

In order to study the viability of an electronic cash management system one needs understand what traditional manual and electronic cash management is.

2.2.1 Traditional Manual Cash Management Process

Johnson (1994:31-33) as stated in Adendorff (1999) provides an apt description of the cash handling process at a retail bank:

"As any bank teller will tell you, cash can be a great deal of bother. Handling it is a menial and tedious job. It has to be sorted, counted, and stacked into bundles in

which all the bills face the same way. It's heavy, it gives paper cuts, and it turns your hands black. When it's stored, it has to be locked into a vault or bolted into an impenetrable bank machine. When it's moved, it has to be accompanied by armed guards with shotguns and shipped across country in armoured trucks."

The traditional cash management process in a fuel retail environment begins with the customer who pays the cashier in banknotes for the goods purchased. The banknotes are handed over by the customer and counted into the till drawer by the cashier.

Cash accumulates in the till drawer during the course of the trading day or until the point of sale software warns the cashier of excessive cash. The cashier removes the excess cash and takes it to the back office where it is handed over to a third party were it is recounted, verified and a cash drop register is completed.

Below is the cycle of a traditional manual cash management process at a fuel retailer.

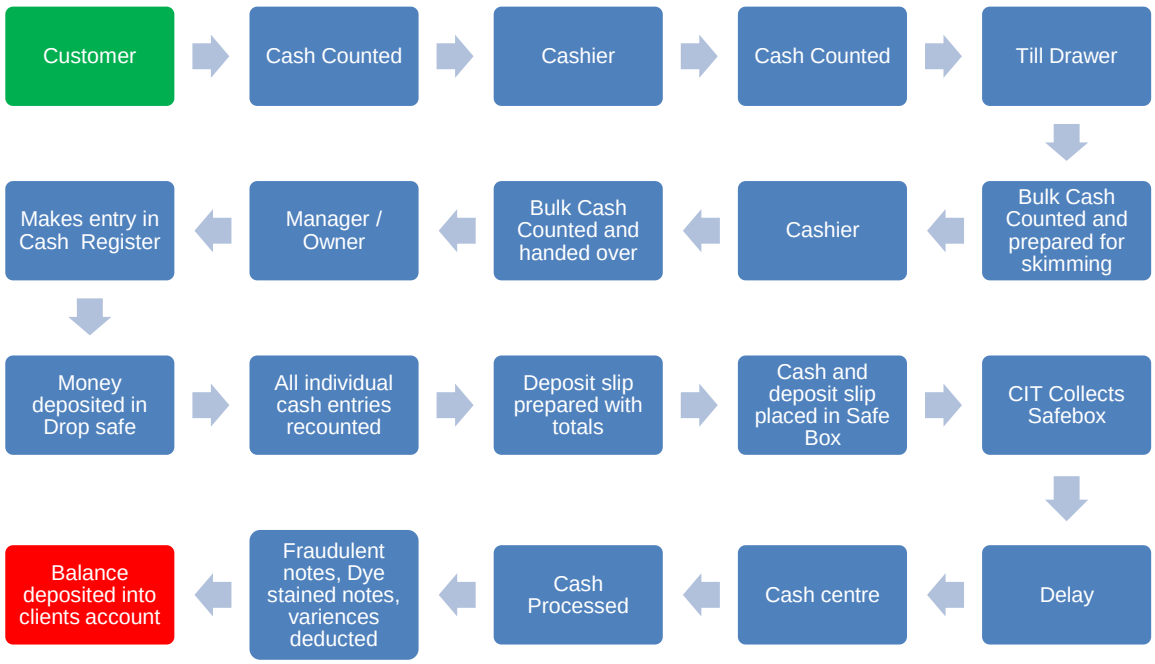

Figure 2.1 Traditional Manual Cash Management Process

The banknotes are then placed in a plastic bag with the drop register and under dual control deposited in a drop safe. In larger fuel sites the third party could be a supervisor while in many smaller sites it is often the owner or manager.

At this handover the banknotes are counted once again as it transfers from the cashier to the supervisor and a receipt is issued to the cashier for the till drawer.

The transfer of banknotes between cashier and the supervisor can occur on numerous occasions during the course of the shift depending upon how many times per shift the tills are cleared and how many cashiers work per shift.

Below is an image of a traditional drop safe that is installed in a fuel retail site

Fig 2.2 Drop Safe

[Online] available from < www.allproduscts.com> [10 January 2012]

In instances where there is no drop safe the supervisor or manager will bring all the banknotes handed over to a central place where a bank deposit is prepared. The bank notes are separated and then bundled in individual denominations, and the counted totals are then entered into a bank deposit.

Once the bank deposit slip has been completed, it is placed into a safe box and sent to the bank. A security company that transports money in an armoured vehicle will collect the safe box and deliver it to the bank for processing. At smaller sites the cash may be taken by the owner or manager.

When the safe box arrives at the bank for processing, the safe box is opened by a teller and the bank notes counted again and compared to the deposit slip before the amount is credited to fuel retailers account. Discrepancies in the amount counted and the amount on the deposit slip will be adjusted in the fuel retailers' account.

From the above, the cash is counted several times due to the number of handovers involved in the process. This manual human intervention can lead to inefficiencies and errors in the process.

2.2.2 Electronic Cash Management Process.

Electronic cash devices allows for the depositing of moneys electronically into the clients' bank account the moment the money is inserted and verified by the electronic safe at the clients' site. The electronic cash device has a banknote validator for all denominations and also isolates soiled or fraudulent banknotes. The banknotes are stored in sealed boxes. Below is a typical electronic cash device.

Fig 2.3 Electronic Cash Device

[Online] available from < www.triton.com> [10 January 2012]

The electronic cash device transmits the cash totals to the clients nominated bank account using a wireless internal network connection, and the contracted financial institution provides credit to the clients account.

Due to the client receiving an electronic deposit from the bank for money stored in the electronic cash device while cash is still on the premises, the cash can be moved to the banks cash center at less regular intervals, decreasing costs without hindering cash flow.

The figure below shows the steps involved in the cash handling using the electronic cash management process.

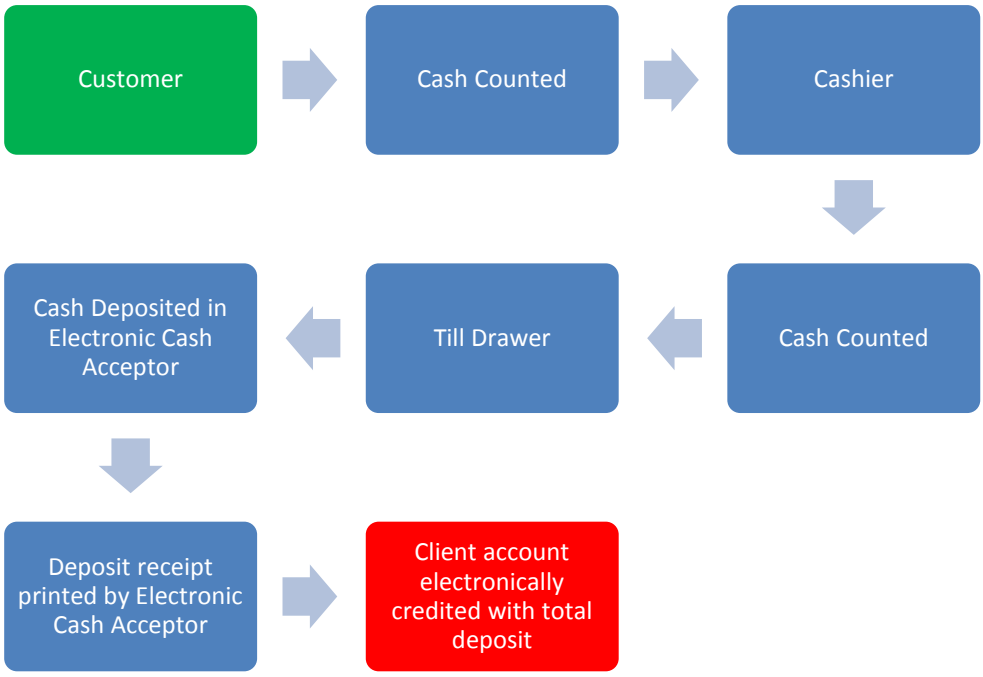

Figure 2.4 Electronic Cash Management Process

As shown above there is significant reductions in cash office personnel since most of the tedious manual labour has been eradicated. The following have been removed from the system.

- Manual counting of notes out till drawers
- Manual settlement of cash with the Point of Sale System
- Manual preparation and verification of bank notes
- Manual deposit slips

Cash shrinkage is greatly reduced since the system accounts for all monies accepted.

Retailers that regularly receive significant sums of cash, electronic cash management systems offer an array of benefits.

Increased Security: Implementation of an electronic cash handling system allows for a review of procedures relating to the handling of cash, which improves the security standards.

Depositing of cash money on or after day-to-day trade into the electronic cash device eliminates many cash handling touch-points throughout the cycle. The electronic system registers users and therefore denies access to the cash system by unauthorised employees, which limits exposure to risk, reduces variances due to hand-over or human error and labour costs.

Along with decreasing the need hand-overs, an electronic cash device reduces exposure to external and employee theft.

The cash is protected swiftly, with improved precision, thereby reducing the likelihood of employees committing theft or give inside information to crime syndicates. Exchanging counterfeit notes for legal change would not be possible as only legal cash notes are accepted by the device, no dye stained or counterfeit notes are accepted.

Improved cash flow: An electronic cash device releases the value of the cash much faster for the business to use when compared to traditional cash handling processes. As the cash is deposited in the electronic cash device it is electronically counted and verified thereby allowing financial institutions to deposit full value into the clients account, based on the digital signal generated from the electronic cash device to the bank server.

“Without a positive cash flow, a company might not be able to pay its creditors timeously, resulting in legal action and even leading to liquidation of the company.” Geach (2007:1043)

Depending on the bank’s procedures, the electronically verified amounts will be credited to the account immediately.

Counting and reconciliation errors are eliminated since the cash is electronically counted, verified and deposited in the bank account. The cash-up clerk will have an accurate record of daily deposits generated by the electronic cash device, which streamlines and speeds up record keeping and administration. Regular deposits into the business operating account increases the business cash flow, as the money is

more readily available for use for personnel, replenishing stock, overheads and various other business outflows.

Reduction in cash-management costs: Expenses for handling and managing cash is reduced when electronic cash handling procedures are implemented. Managers and personnel are less required to count cash and settling invoices and slips against the POS system.

Electronic cash handling also removes calculating mistakes and the stresses of frequently transporting cash to the cash centre for credit. The business can limit the number of cash collection by armoured cash in transit services thereby reducing those fees.

Subject to the cash volume, a business may have a weekly cash CIT collection as opposed to a daily collection. Reduction in the frequency of collections is possible as the contracted bank electronically deposits the funds into the clients account as the cash is inserted into the electronic safe. Fewer collections reduce the cost of collections and the risk exposure during the collections.

2.3 Business Environment Analysis

Business environmental analysis is a process that starts from the identification of environmental factors, assessing its nature and the possible influence, evaluating them to find their impact to the business, and therefore adjusting strategy accordingly. The tools used for business environmental analysis are discussed in the subsequent section. To invest in the development and marketing of the electronic cash management system, one has to carefully perform an analysis of the business environment. This will assist in routing a strategy forward or to stop the process. Performing a business environment analysis in the Phoenix and Inanda areas will be required to assess the way forward.

2.3.1 PEST Analysis

PEST analysis is a simple and widely-used tool that can be used to analyse the environment the business operates in based on the Political, Economic, Social and Technological factors

PEST analysis can be a very effective tool in understanding market and business position.

2.3.1.1 Political Factors

Political factors refer to government policy such as the degree of intervention in the economy. Political decisions can impact on many vital areas for business such as the skills development of the workforce, the health of the nation and the quality of the infrastructure of the economy such as the transport and communication system. Political factors are important as it can have a strong influence on the business sector especially with regards to the confidence level of investors.

Government policies on taxation, investment incentives, BBBEE, consumer protection trade tariffs and labour law can have significant implications on the business and industry.

South Africa's peaceful and stable transition to democracy is universally recognised as one of the major achievements of the 20th Century.

According to Ehlers and Lazenby (2008), “Any government is a major regulator, deregulator, subsidiser, employer and customer of the organisation.” They go on to state five aims that the South African government will focus on that will have an influence on organisations.

- To enhance the process of social and economic transformation
- To emphasize the effectiveness and efficiency of delivery in respect of government actions and initiatives.
- To stimulate job creation in alliance with the private sector

- To be seen to be serious in its approach to dealing with law and order
- To enhance the process of the ‘African renaissance’

It is imperative that organisations consider the possible impact of political variables on the formulation of competitive strategies.

2.3.1.2 Economic Factors

“The health of a nation’s economy affects individual organisations and industries, because economic factors will affect the nature and direction of the economy in which an organization operates.” Ehlers and Lazenby (2008:108).

Organisations therefore need to understand the economic environment to be able respond to trends and evaluate different strategies. Interest rates, inflation and disposable income influence the consumer behavior and spending pattern.

“The economic well-being of a country or its economic growth rate is measured by the number of products and services produced. This standard is known as Gross Domestic Product (GDP).” Du Toit and Erasmus (2007:106). “Economic forces like interest rates, inflation, unemployment, economic growth are some of the factors that affect the general health and well-being of a nation or the regional economy of an organisation.” Jones and George (2008:221)

If the economic growth rate is high this is a sign that the economy can produce sufficient employment for its population which can improve the standard of living. The implications higher standard of living for the population could also be a steady and skilled labour supply.

2.3.1.3 Social Factors

Variations in social trends can have an influence on the demand for an organisation's products and the readiness and inclination of individuals to work. South Africa is a

mixed society with complex mixture of races, languages, religions, colours and cultures.

“New trends in the sociocultural environment are creating a different type of consumer and thus a need for different products, services and consequently different strategies for organisations.” Ehlers and Lazenby (2008:109) The role of women in the modern economy, level of education and the ageing of the population have resulted in companies changing their strategies to adapt to these changes in the social trends. These factors change the management of a workforce which impact on the productivity and cost.

Ghoshal, Bartlett and Moran, as stated in Du Toit and Erasmus (2007:111), maintain that organisations should seek compatibility of their own interests with the interests of the society while striving for overall value creation.

Organisations therefore need to be socially responsible and while profit and employment is important, businesses are expected to promote the interests of the society.

2.3.1.4 Technological Factors

Technological innovation can create new products or processes. Technological advances can avoid obsolescence, reduce costs, improve quality and lead to innovation.

“The overall pace of technological change has accelerated greatly in the last decade because of advances in microprocessors and computer hardware and software, and technological forces have increased in magnitude.” Jones and George (2008:222)

Technology can change the way a business operates. Innovations are not only the result of changes in computer systems. It has also reduced the cost of voice and data communication.

“Entrepreneurs who follow technological trends are able to foresee new and previously unheard of applications, sometimes earning fortunes in the process.” Mullins and Walker (2008:79)

Apple’s iPod has created a convergence of telecommunications, entertainment and computing technology and industries. Technology has led to the creation of new markets, distribution channels and marketing communication.

Superior management of technology within the business can be an important source of competitive advantage. According to Du Toit and Erasmus (2007:105), continued assessment of the technological environment should include the following:

- The identification of important technological trends
- An analysis of potential change in important current and future technology
- An analysis of the competitive impact of important technologies
- An analysis of the organisation’s strengths and weaknesses
- A list of priorities that should be included in a technology strategy for the organisation.

Technological advances can affect the entire organization. Management must be alert to changes in technology. No organization is insulated against technological advances and cannot afford to stay behind in technological progress.

2.3.2 Porter’s Five Forces Model

A well-known model that helps managers focus on the most important competitive forces, or potential threats, in the external environment is Michael Porter’s five forces model as shown in figure 2.5

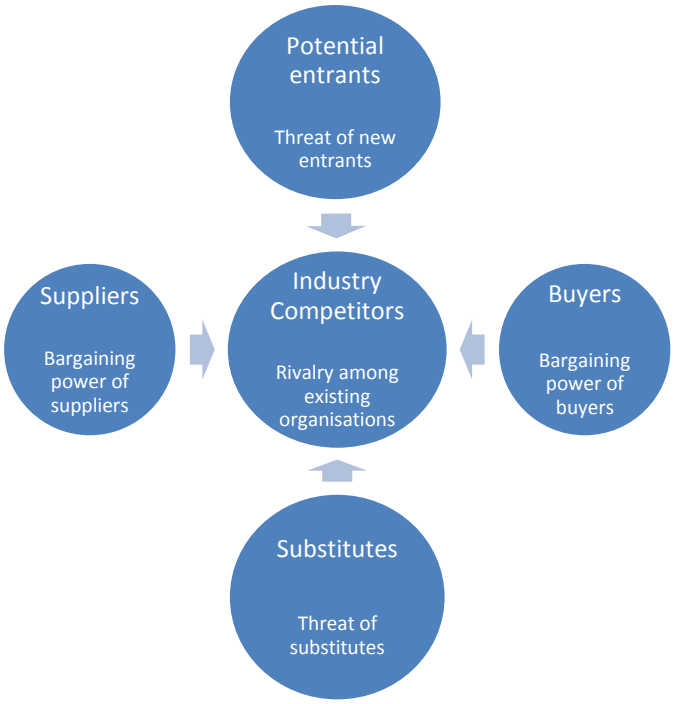

Figure 2.5 The Five Forces Model for Industry Analysis

Adapted from Du Toit, G.S & Erasmus, B.J. & Strydom, J.W. 2007. **Introduction to Business Management.** South Africa: Oxford University press. p101.

Porter's Five Force Model tests the company in its competitive environment and provides a framework to measure how the company competes in the marketplace, having the external and internal forces applied to it.

2.3.2.1 Threat of new Entrants

"It is important to identify new entrants, as they can threaten the market share of existing competitors by bringing additional production capacity to the industry." Ehlers and Lazenby (2008:112). The easier it is to enter an industry the more likely it is for the industry prices and therefore profit to be lower. The profits from the already established organisations in the industry may be reduced by entrance of new competitor organisations.

With an increase in entrants competition would increase which would reduce returns unless the demand increases.

“Barriers to entry are factors that make it difficult and costly for an organisation to enter a particular task environment or industry.” Jones and George (2008:219). The more difficult it is for new entrants to enter the industry, the more likely the existing organisations are making relatively high profits.

Economies of scale can be a barrier to entry. When production is increased and it results in the lowering of manufacturing costs because the costs are spread over a larger number of units, economy of scale is reached. New entrants to the industry usually have small scale production and will not have these cost advantages.

Organisations within the industry have over time create effective advertising campaigns to position them as first to market the product which creates a product that is unique to the brand. This creates a product differentiation and customers tend to become loyal to the established organisation.

The amount of capital required up front for research and development or advertising may discourage new entrants to the industry.

New entrants will need to establish distribution channels. They have to compete against established organisations to secure a space at distributers for their product. The process of setting up these channels may reduce the profit potential of their product.

2.3.2.2 Bargaining Power of Suppliers

“Suppliers are individuals and organisations that provide an organisation with input resources that it needs to produce goods and services.” Jones and George (2008:213). Input resources may be raw materials, component parts, or employees. Trade unions may also be viewed as suppliers of labour.

Suppliers have a large influence over an industry as they affect price increases and product quality. Suppliers of raw materials and components, to the firm can be a source of power over the firm. Suppliers can increase prices and/or reduce the

quality of their product, which reduces the profitability of the organisation unless it is able to recover the increased cost from its own prices.

Supplier power is usually high when;

- The industry is dominated by a few large organisations.
- Few or no suitable substitutes are available
- The industry to which it supplies its goods is not its core customer base
- The goods that are supplied are critical to the purchasers' organisation.

If a business cannot obtain;

- the right inputs
- of the necessary quality
- in the right quantity and
- at the right price,

for the production of its products, then it cannot achieve any success in a competitive market environment.

2.3.2.3 Bargaining Power of Buyers

Buyers are the customers of the organization. Buyers bargain for higher quality at lower prices and improved services. If the power of the buyers is high they can force prices down at better quality and can play competitors against each other to get the best deal.

"Consumers' awareness of possible products and services has increased as a result of global competition, were a greater variety and higher quality of choice is available to them." Smit and Cronje (2007:437). Consumers are now able to select products and services according to their terms.

Customers have strong bargaining power when:

- there are a few big buyers were each one is important to the organization

- buyers can easily switch to other suppliers
- there are suitable substitute products available
- buyers are able to integrate backwards into the industry
- the products are standardized and not differentiated
- buyers have access to information on market conditions

The needs of customers are determining how organisations set strategies to better serve their customers. This is done by continuous review of products and services.

2.3.2.4 Threat of Substitute Products

“A substitute is a product or service from another industry that can be used to perform similar functions as a product or service in the industry.” Ehlers and Lazenby (2008:116).

This evaluates the ease with which buyers can shift to another product that produces the equivalent result.

If substitution is easy and substitution is viable, then this weakens your power. A close substitute product can inhibit the ability of organisations within an industry to increase prices. “In general, the greater the availability of substitutes, the higher the price elasticity of demand.” Schiller (2009:94). A substitute product can affect the products price elasticity especially if the product is not a necessity.

2.3.2.5 Threat of Competitors

“Competition as a variable of the market environment can be defined as a situation in the market environment in which different organisations with more or less the same product or service compete for the business patronage of the same consumers.” Smit and Cronje (2007:66).

This measures the amount of competition amongst existing organisations. The higher the degree of competition the more challenging it is for existing organisations

to produce higher profits. Apart from competing for product market share, the organisations also compete for labour, capital and materials. The opening up of world markets has increased the rivalry in industries

Organisations that introduce new technologies can benefit from higher profits until the competition copies or imitates the product. For this, a sustainable competitive advantage through innovation is needed.

The five forces discussed above will vary over time as market conditions fluctuate. The business environment is not stationary and the conditions in any industry will always be changing. As this happens the various components of the five forces are always moving, requiring established organisations and prospective entrants to constantly re-evaluate their strategies.

2.3.3 SWOT Analysis

SWOT analysis is a strategic tool that is used to evaluate the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats that are involved in a plan or business venture. SWOT analysis may also be used to create a recommendation during a feasibility or viability study.

According to Ehlers and Lazenby (2008), SWOT analysis includes both internal and external environment as illustrated below.

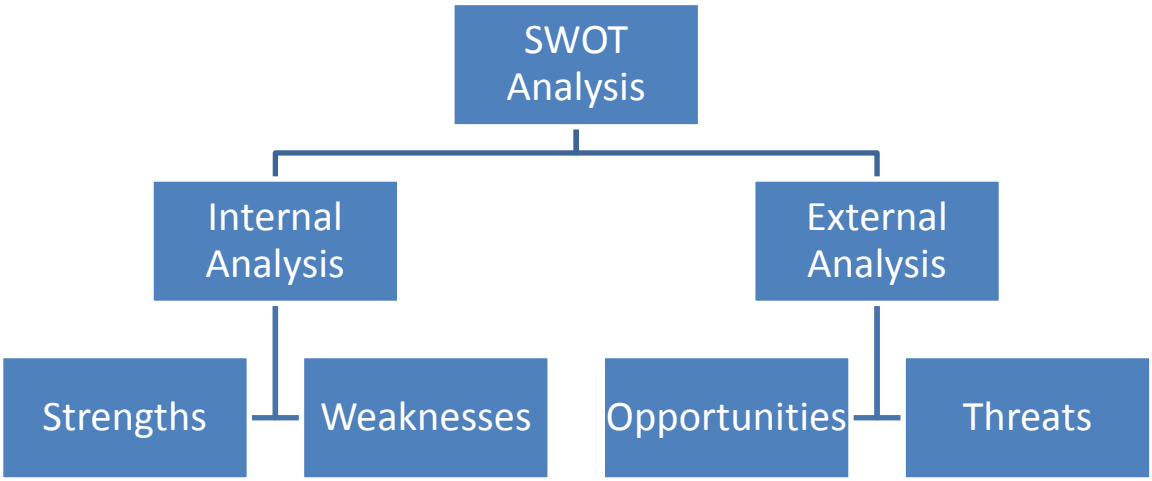

Figure 2.6 Relationship between SWOT analysis and environment analysis

Adapted from Ehlers, T. and Lazenby, K. 2008. **Strategic Management.** Pretoria: Van Schaik. p82.

Strengths and weaknesses refer to internal or microenvironment and the opportunities and threats relate to the external factors in the macro environment. The success of a venture for the organisation may depend on the strategic fit between the internal environment of the organisation and the external conditions.

2.3.3.1 Strengths

"Strength is a resource or capability that an organisation has which is an advantage to what the competitors have." Ehlers and Lazenby (2008:81). Strengths are factors that are within control. It may be tangible or intangible positive factors within the organisation.

Strengths can become weaknesses if it is not properly fostered and grown by the organisation. To identify strengths it must be some aspects that differentiate the organisation from its competitors.

2.3.3.2 Weaknesses

“Weakness refers to a lack of, or deficiency in, a resource that represents a relative disadvantage to an organization in comparison to what the competitors have.” Ehlers and Lazenby (2008:82).

It is an internal liability that is a hurdle in the way of the organisations success. Also the lack of a particular strength in relation to the competitors may also be a weakness. A weakness may hinder the organisation from obtaining a competitive position in the industry.

2.3.3.3 Opportunities

“An opportunity may be defined as a favourable condition or trend in the market environment that can be exploited to an advantage by a deliberate management effort.” Du Toit and Erasmus (2007:118)

An opportunity must not be pursued in isolation as an opportunity must be assessed against the internal environment based on the organisations resources and capabilities. Without the proper resources an opportunity cannot be appropriately taken advantage of.

2.3.3.4 Threats

“A threat may be defined as an unfavourable condition or trend in the market environment that can in the absence of a deliberate effort by management, lead to failure of the business, its products or its services.” Du Toit and Erasmus (2007:118). Scanning of the environment is necessary to identify threats so the organisation is able to place itself to counter to them successfully.

With the SWOT analysis completed, the strengths, weaknesses, opportunities and threats that have been identified, the planning process can continue and the organization can decide on specific strategies for achieving its intended goals. The strategies should position the organisation to reach its goals by maximizing opportunities, counteracting threats, resolving weaknesses and leveraging on strengths.

2.4 Summary

Electronic cash management systems are new to the market. There are significant features on offer by this system. These features provide an alternative to the manual cash handling processes and would impact on the administrative and reconciliation processes at a retailer.

The electronic cash handling system introduces an efficient method of having the value of cash available for the business use due to the electronic deposit system which will impact the cash flow.

Employees have less access to the cash with fewer touch points leading to fewer opportunities for human and handling errors. Fewer errors would have a bearing on the time spent correcting errors and reduces the uncertainty of employee honesty.

Employees need to feel a “perceived usefulness” and a “perceived ease of use” for the system to be accepted.

The organization and the environment in which it operates in depend on each other for survival. Changes in the environmental variables and the organisations ability to adapt may determine the success or failure of the business.

The understanding of various market structures enables one to understand the way organisations behave and conduct business strategies. This chapter provided the theoretical framework that serves as a guiding star to focus planning at tactical and operational levels. It looks at the global environment and assesses the forces and conditions that influence business strategy.

The next chapter, chapter 3, provides the research methodology employed in the study. The research instrument is developed and administered, sampling is discussed and how the steps employed would lead to the research objectives.

Chapter 3: Research methodology

3.1 Introduction

This chapter considers the research methodology that was used to study the viability of electronic cash management system for fuel retailers in Phoenix and Inanda. This chapter addresses the objectives of the study and highlights the research question posed. Research methods refer to the systemic, focussed and orderly collection of data for the purpose of obtaining information from them to solve/answer research problems or questions. (Ghauri and Gronhaug, 2002). The research methodology is discussed by considering the data collection strategies, research design, sample design and proposed analysis for the study.

Leedy (1997: 103-104) maintains that the research method used should be chosen with cognisance of the data that will be gathered to solve the research problem: “The data dictate the research methodology”. Quantitative and qualitative methods are the main methodologies to collecting and analysing data.

• The quantitative approach is used to determine the relationships among measured variables to explain, predict and control phenomenon. The end result of a quantitative study is usually the confirmation or disconfirmation of the hypothesis that were tested.

• In a qualitative approach the emphasis is on describing and understanding the nature of phenomena and the end result is tentative answers or hypothesis about what has been observed. Further quantitative studies can then be based on these tentative hypotheses.

3.2 Objectives of the study

The main aim of the study is to find if using an electronic cash management system would be beneficial to the business in terms of security, administrative work and cash flow.

The objectives of the study are as follows:

1. To explore and evaluate the viability of an electronic cash management system.
2. To establish an acceptance of electronic cash management system by the staff.
3. To assess the viability based on the clients perceptions

3.3 Data collection strategies

Data collection is an important aspect of any type of research study. Inaccurate data collection can impact the results of a study and ultimately lead to invalid results. The two basic data collection approaches are:

- by complete enumeration, where all members of the whole population are measured or;
- by sampling, where only a proportion of members of the whole population are measured.

At the start of this study there were 39 service stations in the area concerned. All sites were approached and 35 respondents were willing to complete the questionnaire. This represented a 90% response rate with a Confidence Level = 95% and Margin of Error = 5%. The study was limited to the Phoenix and Inanda areas.

3.4 Research Design and Methods

3.4.1 Description and Purpose

Primary data has been collected for this research by utilising questionnaires administered in an interview style environment.

3.4.1.1 Construction of the instrument

The choice of individual questions is determined by the data needed and can be developed by the researcher, or adopted or adapted from other questionnaires (Peens, 2003:67).

The first 4 questions form the demographic portion of the questionnaire. This is used to gather data about the age, gender, ethnicity and number of years of experience in managing a fuel retail outlet of the respondent.

The next seven questions deal with possible shortages or theft experienced by the respondent. These questions are to gather data about the possible security risks and shortages experienced by the respondent. The data gathered from these set of questions would help to determine the main aim of the study with respect to security and administrative benefits afforded by the electronic cash management system. Finding the cause of shortages either due to human error or fraudulent notes does require additional administrative effort.

The following six questions are designed to find out about the respondents current cash handling procedures. The data gathered will provide an indication of the number of staff that comes into contact with the cash and possible risk exposure and the duration taken for the money to move from the till-point and reflect in the respondents' bank account. This will have an effect on the cash flow of the business.

The following five questions are designed to gather data about the respondents' perception of their current cash handling process. The data collected would provide an insight into the respondents' possible need for the new electronic cash handling

system and highlight shortcomings in their current procedures. “Perceived usefulness (i.e., perceived benefits) of an innovation is a key factor in its adoption.” (Venkatesh and Davis: 2000). Perceived usefulness of the electronic cash management system is used to assess the viability based on the clients’ perception.

The remaining eight questions are designed to provide data on the respondents’ perception of the employees’ acceptance of the new technology and to assess respondents’ view on the level of viability of the benefits provided by an electronic cash handling process. The respondents’ perceived level of viability is measured using the Likert scale.

Questionnaires allow access to a larger sample group and it is convenient for the researcher to analyse the data obtained. It also removes the bias of the researcher which could taint the validity of the respondent’s selection.

Face to face interviews have a distinct advantage of enabling the researcher to establish rapport with potential participants and therefore gain their cooperation. This interaction in the interviews yields highest response rates in survey research. They also allow the researcher to clarify ambiguous answers and when appropriate, seek follow-up information. Disadvantages include impractical when large samples are involved time consuming and expensive.(Leedy and Ormrod, 2001).

Bailey (1982) states that the key point in the construction of a questionnaire is relevance. He goes on to say that relevance has 3 facets namely:

- Relevance to the study’s goals
- Relevance of the questions to the goals of the study
- Relevance of the questions to the individual respondent

Closed questions were used in this research (See Appendix) to simplify the gathering of the information and simplify the ease of answering the questions, as the respondents merely needed to select from a list of alternatives. Questions and answers were predetermined thereby allowing for uniformity of the questions and statements. The respondents were given sufficient time before they made their selection.

The questionnaire was used to gather the following information:

- Biographical data
- Cash handling procedures
- Cash shortages including internal and external theft
- Client perception of manual cash handling and electronic cash handling.

The response format was to answer questions by marking the relevant block with a tick or cross in a multiple choice style. Likert scale was used for client perceptions of electronic cash management system. This improves the measurement in social research through the use of standardised responses. The questions and statements were designed to be easily readable and to facilitate quick answering of questions.

The questionnaire was in English, as most fuel retailers are sufficiently conversant in English. An informed consent letter explaining the purpose and scope of the study was given to the respondent before commencing the questionnaire. The respondent was also assured confidentiality of their responses.

3.4.1.2 Recruitment of Study Participants

Sampling as described by Wegner (2001, 170) is the process of selecting a representative subset of observations from a population to determine the

characteristics of the random variable under study. Ehrenberg (1989:107) describes simple random sampling to have no systematic selection bias, and each element of the population has the same probability of being selected.

A database of fuel retail sites in the area under the study was obtained from and used under permission of Deposita Systems.

3.4.2 Pretesting and Validation

In order to assess the validity of the questionnaire a pilot study was undertaken. The pre-test survey using five subjects was conducted as an interview. They were provided with the informed consent letter and questionnaire and asked to complete the questionnaire without asking any questions for clarity. The interview was performed after they completed the questionnaire. This enabled the researcher to make suitable adjustments in the questions and approach. According to Zikmund (2003:215) attention to design of questions ensuring they are easy to understand is necessary in aiding with higher completion rates.

Attention to questionnaire design and administration leads to improved response rates and, hence, improved reliability and validity.

The pre-test subjects were able to complete the questionnaire in less than 10 minutes. The pre-test procedure was used to improve response rates due to poor constructed questions and was used to adjust the approach for the study.

3.4.3 Administration of the Questionnaire

Questionnaires were presented to retail fuel outlets across all brands in the Phoenix and Inanda area. Due to questions about security and volume of cash being of a sensitive nature emails and web-based questionnaires will not be used. Questionnaires will be randomly administered to senior managers/ owners of fuel retail outlets face to face. Senior managers or owners have been selected as the respondents as they have knowledge of the financial operation of the fuel industry. Where possible, appointments were setup prior to the visit however majority of the responses were obtained by a cold call visit.

3.5 Analysis of the Data

Frequency analysis: An analysis of the frequency distribution of data will be performed for respondent perception testing. Frequency distribution analysis groups the data into classes and counts the number of data points in each grouping. Frequency analysis highlights the distribution of the raw data allowing for the data to be converted to percentages which is a more useful description of the data. Using the groupings and percentages will allow for graphical representation of the data.

Spearman's rho analysis has been used to test for correlation of data. The non-parametric Spearman's rho test was used as the data that was collected was not normally distributed data.

Regression analysis is performed after the correlation testing. Linear regression analysis is similar to correlation as both methods measure the relationship between two variables. Regression analysis differs from correlation in that it is used to predict the value of a dependant variable based on the value of an independent variable.

Simple linear regression is similar to correlation in that the purpose is to measure to what extent there is a linear relationship between two variables. The major difference between the two is that correlation makes no distinction between independent and dependent variables while linear regression does. In particular, the purpose of linear regression is to "predict" the value of the dependent variable based upon the values of one or more independent variables.

3.6 Summary

Chapter three describes the research methodology applied for this study. It showed the different types of research methodologies with the applicable survey method used. This chapter highlighted the selection of research sample, construction and administration of the questionnaire and the use of a pre-test to streamline the process and questioning techniques for the actual study. The construction of the questionnaire was designed to meet the aim and objectives of the study.

In the next chapter, Chapter four, the data that was obtained above will be analysed using mathematical tools to assist with the aim and objective of this study.

Chapter 4: Analysis of Results

4.1 Introduction

This chapter reports on the results of the research study. All the data collected was input into an IBM statistics package, SPSS. Several tests were conducted on the data in order to gather results for the study.

The analysis is presented according to the format of the questionnaire which reflects the usage of the statistical tools dependant on the type and nature of questions asked. Interpreting the results of the data analysis will deliver the objective of finding if there is a viable need for electronic cash management systems in fuel retailers.

4.2 Questionnaire analysis

4.2.1 Demographic frequencies analysis

Question 1: Age in years?

Table 4.1 introduces the statistics for the question of age of respondents. A large portion of the respondents are from the ages of 31 – 40 years old.

Table 4.1 Age of respondents

Q1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	9	25.7	25.7	25.7
	31-40	13	37.1	37.1	62.9
	41-50	10	28.6	28.6	91.4
	>50	3	8.6	8.6	100.0
	Total	35	100.0	100.0	

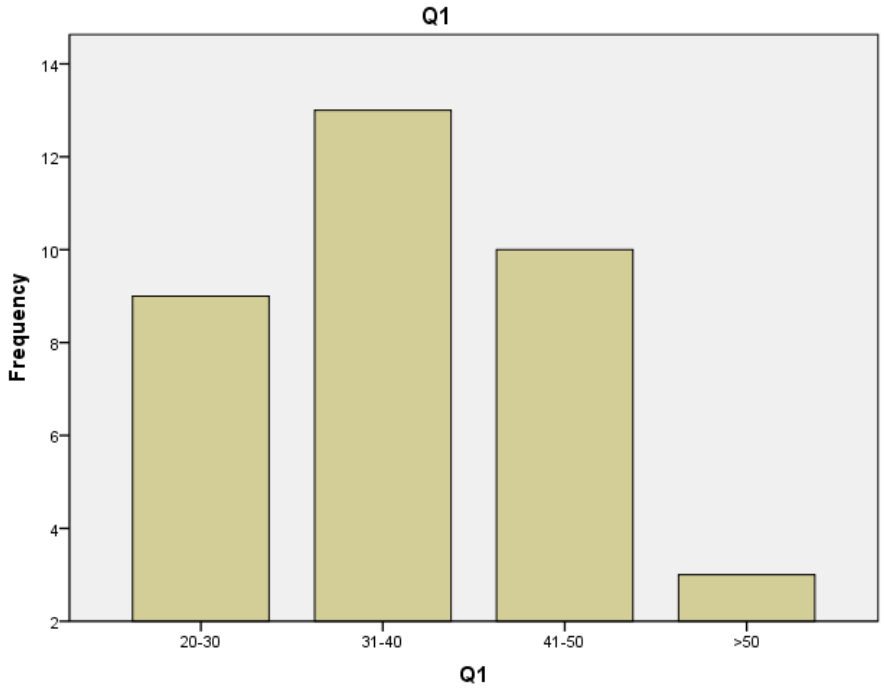

Figure 4.1 Age of respondents

Age analysis, as shown above, indicates that there are a large number of young managers and owners from 31-40 years old in the fuel retail industry.

Question 2: Gender?

Table 4.2 shows gender statistics. It can be noted that currently there were more men than women by a margin of approximately 70%.

Table 4.2 Gender distribution

Q2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	30	85.7	85.7	85.7
	Female	5	14.3	14.3	100.0
	Total	35	100.0	100.0	

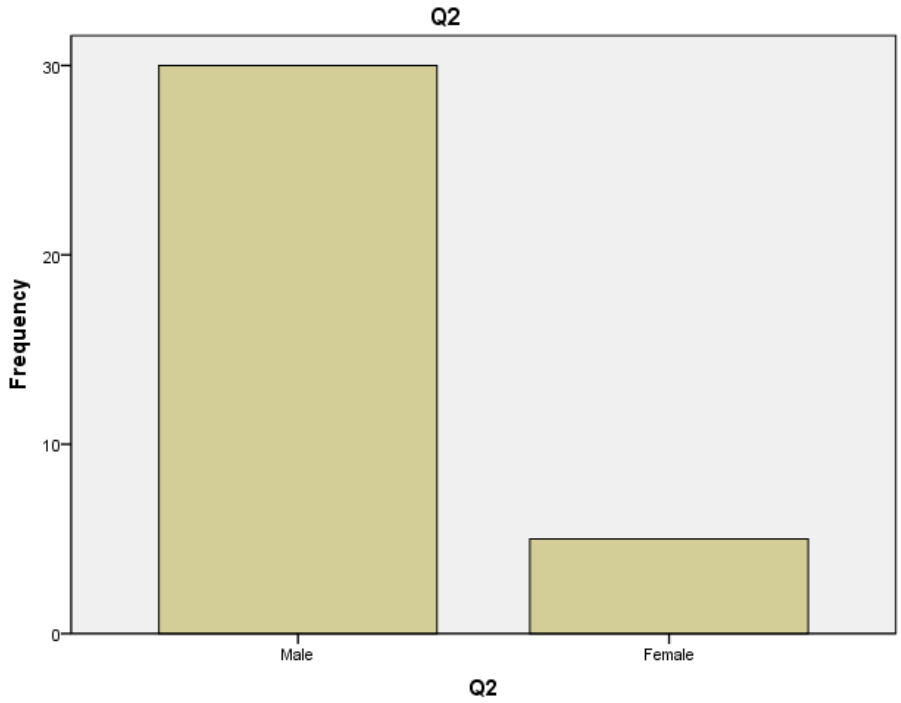

Figure 4.2: Gender

Gender identification revealed that approximately 86% of respondents are male and 14% female. This is indicative of a male dominated industry.

Question 3: Ethnicity

As shown below in table 4.3, Indians formed the highest percentage of respondents at 85.7% followed by Blacks at 11.4% and whites at 2.9%.

. Table 4.3 Ethnicity

Q3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	4	11.4	11.4	11.4
	White	1	2.9	2.9	14.3
	Indian	30	85.7	85.7	100.0
	Total	35	100.0	100.0	

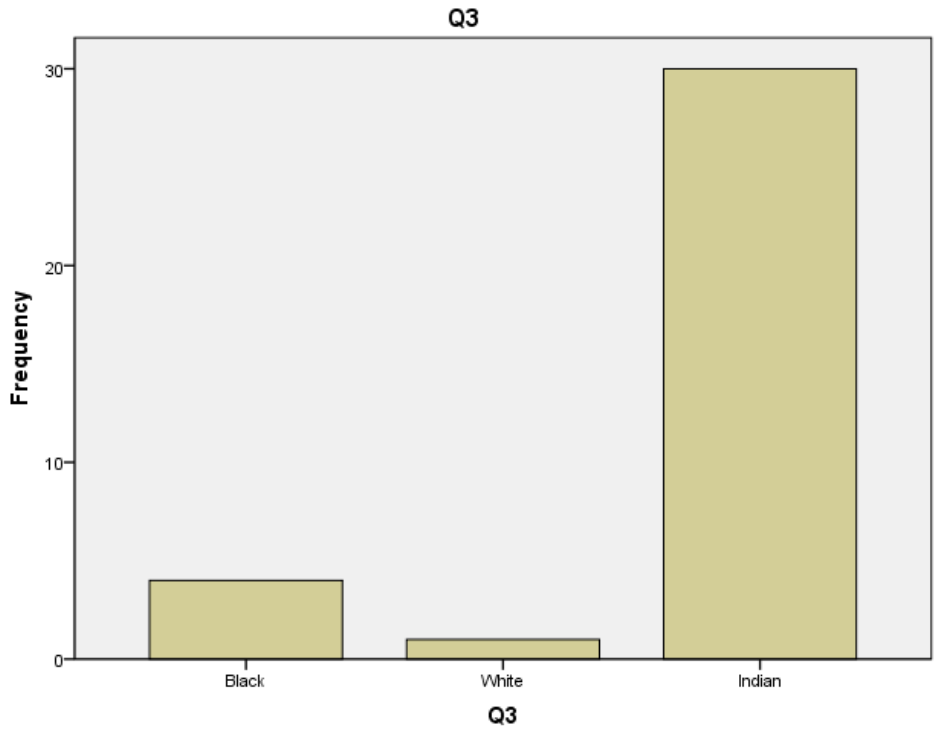

Figure 4.3 Ethnicity

As the study was conducted in Phoenix and Inanda, both townships in an Indian and Black area under the group areas act, most of the respondents are Indian and Black.

Question 4: How long have you been involved in the management of a fuel retail outlet?

Table 4.4 Number of Years in Fuel Retail Management

Q4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2	1	2.9	2.9	2.9
	2-<5	8	22.9	22.9	25.7
	5-<10	14	40.0	40.0	65.7
	10-<15	4	11.4	11.4	77.1
	>15	8	22.9	22.9	100.0
	Total	35	100.0	100.0	

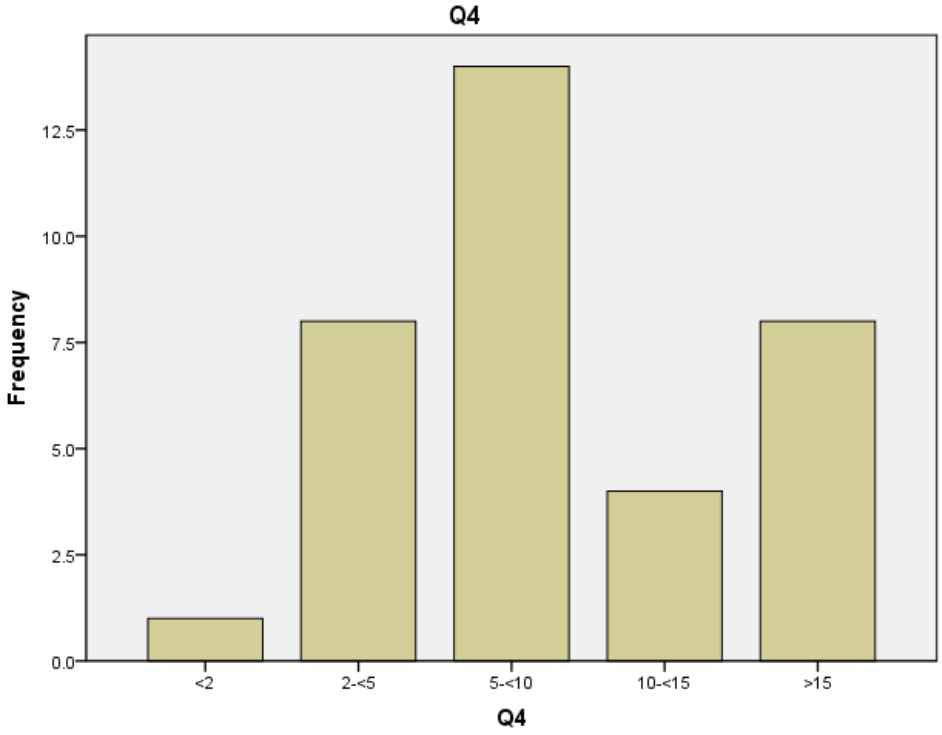

Figure 4.4 Number of Years in Management

As shown above in figure 4.4 and table 4.4 the respondents have numerous years of management experience in the fuel retail industry. Most respondents have from 5 to 10 years in management experience.

4.2.2 Correlations:

Spearman's correlation coefficient, r_s, is a non-parametric statistic and so can be used when the data have violated parametric assumptions such as non-normally distributed data.

Correlation between Question 5 and Question 13: Correlation between shortages experienced in a month and the number of staff involved in the cash-up process.

Question 5: Do you experience shortages in your monthly cash reconciliation?

Yes	No
Rank1	Rank2

And

Question 13: How many staff is involved in the cash-up process.

0	1	2	3	>3
Rank 1	Rank2	Rank3	Rank4	Rank5

Table 4.5 Correlation between shortages experienced and number of staff involved in cash up process

Correlations

			Q5	Q13
Spearman's rho	Q5	Correlation Coefficient	1.000	-.286*
		Sig. (1-tailed)	.	.048
		N	35	35
	Q13	Correlation Coefficient	-.286*	1.000
		Sig. (1-tailed)	.048	.
		N	35	35

*. Correlation is significant at the 0.05 level (1-tailed).

.

As shown in table 4.5 there is a correlation between shortages experienced and the number of staff involved in the cash up process. Incidences of shortages increase with the number of staff that participates in the cash-up process.

Therefore the fewer staff that handles the cash, the lower the incidences of monthly cash shortages occur.

Correlation between Question 7, Question 23e and Question 23f. Correlation between shortages, due to counterfeit/ dye stained notes, reconciliation errors and respondents' perception of the electronic system reducing cash management costs.

Question 7: Do you experience shortages due to counterfeit/dye-stained notes

Yes	No
Rank1	Rank2

And

Question 23e: This system would reduce counting and reconciliation errors.

Strongly Agree	Agree	Disagree	Strongly Disagree
Rank1	Rank2	Rank3	Rank4

And

Question 23f: This system can reduce my cash management cost.

Strongly Agree	Agree	Disagree	Strongly Disagree
Rank1	Rank2	Rank3	Rank4

Table 4.6 Correlation between fraudulent/dye-stained notes received and respondent's perception of the electronic drop safe effectiveness in reducing errors and cost.

Correlations

			Q7	Q23e	Q23f
Spearman's rho	Q7	Correlation Coefficient	1.000	.308*	.392**
		Sig. (1-tailed)	.	.036	.010
		N	35	35	35
	Q23e	Correlation Coefficient	.308*	1.000	.488**
		Sig. (1-tailed)	.036	.	.001
		N	35	35	35
	Q23f	Correlation Coefficient	.392**	.488**	1.000
		Sig. (1-tailed)	.010	.001	.
		N	35	35	35

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

The data above show that respondents that experience shortages due to fraudulent and dye-stained notes perceive that the electronic cash management system would

reduce their counting and reconciliation errors and in-turn reduce the cash management costs.

Correlation between question 17 and question18. Correlation between the number of shortages experienced in a month and respondents perception of their current cash handling process.

Question 17: How many times do you experience shortages/discrepancies at the cash processing centre in a month?

0 times	1 - 3 times	4 -7 times	8-11 times	>11 times
Rank 1	Rank 2	Rank 3	Rank 4	Rank 5

And

Question 18: I am content with the current cash handling process.

Strongly Agree	Agree	Disagree	Strongly Disagree
Rank1	Rank2	Rank3	Rank4

Table 4.7 Correlation between number of shortages per month and respondents' perception of their current cash handling process.

Correlations

			Q17	Q18
Spearman's rho	Q17	Correlation Coefficient	1.000	.484**
		Sig. (1-tailed)	.	.002
		N	35	35
	Q18	Correlation Coefficient	.484**	1.000
		Sig. (1-tailed)	.002	.
		N	35	35

**. Correlation is significant at the 0.01 level (1-tailed).

As shown in table 4.7, as the number of shortages increases at the cash centre so too does the respondents degree of dissatisfaction with their current cash handling processes increase.

No other correlations were significant

4.2.3 Regression analysis

Regression analysis is performed after the correlation testing. Linear regression analysis is similar to correlation as both methods measure the relationship between two variables. Regression analysis differs from correlation in that it is used to predict the value of a dependant variable based on the value of an independent variable.

Regression analysis between Question 5 and Question 13: Analysis between shortages experienced in a month and the number of staff involved in the cash-up process.

Question 5: Do you experience shortages in your monthly cash reconciliation?

Question 13: How many staff is involved in the cash-up process?

Table 4.8 Regression analysis: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.294[a]	.086	.059	1.11294

a. Predictors: (Constant), Q5

This table provides the R and R^2 value. The R value is 0.294, which represents the simple correlation and, therefore, indicates a low degree of correlation. The R^2 value indicates how much of the dependent variable, question 13, can be explained by the independent variable, question 5. In this case, 29.4% can be explained, which is a

small percentage. The regression analysis shows that number of staff involved in cash-up process is not a useful predictor of cash shortages.

Table 4.9 Regression Analysis: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.868	1	3.868	3.123	.086[b]
	Residual	40.875	33	1.239		
	Total	44.743	34			

a. Dependent Variable: Q13

b. Predictors: (Constant), Q5

Here, *P* = 0.086 which is greater than 0.05 and indicates that, overall, the model applied is not good enough in predicting the outcome variable.

Due to a small sample size of 35 respondents the regression analysis does not provide statistically significant analysis. The recommended number of samples should be independent variables + 105. (Tabachnick and Fidell: 2001)

Following this rule, simple linear regression with one independent variable would require a sample of 106 samples.

4.2.4 Frequencies:

The following questions from the questionnaire were selected and their frequencies analysed in order to provide a further understanding of the respondent's perception of the electronic cash management system.

Question 9: Have you experienced an armed robbery in the last 3 years where cash was stolen?

Table 4.10 Armed robberies encountered in the last 3 years

Q9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	16	45.7	45.7	45.7
	No	19	54.3	54.3	100.0
	Total	35	100.0	100.0	

According to the table 4.10 above a significant percentage, 45.7% of respondents had experienced an armed robbery in the last 3 years.

Question 11: How many staff where injured?

Table 4.11 Number of staff injured during armed robbery

Q11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	10	28.6	58.8	58.8
	1	5	14.3	29.4	88.2
	2	2	5.7	11.8	100.0
	Total	17	48.6	100.0	
Missing	System	18	51.4		
Total		35	100.0		

Of the respondents that were involved in an armed robbery, 41.2% had staff members that were physically injured during the incident.

Question 12: Do you have a till skimming policy in place?

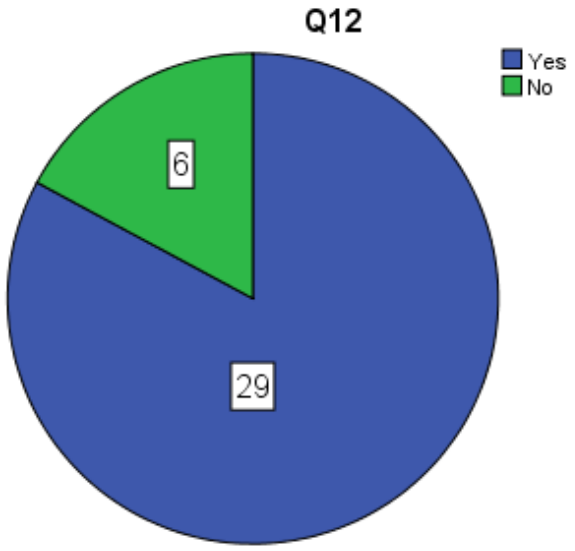

Figure 4.5 Respondents with skimming policy

A large number of respondents have a skimming policy in place. This means that the money that is kept in the cashiers till drawer is at a minimum. This is done to limit the risk exposure.

Question 13: How many staff are involved in the cashing up process?

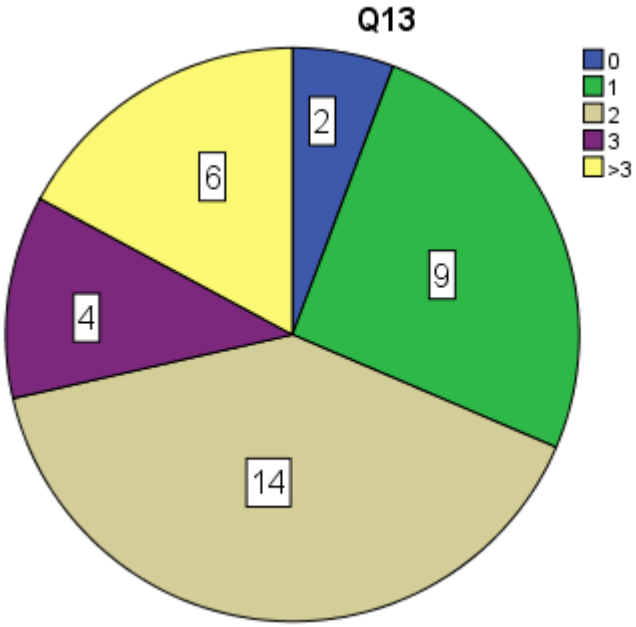

Figure 4.6 Number of staff involved during the cash-up process

As shown above there are mainly 2 staff members that is required to perform a cash-up. Only 9 respondents perform the cash-up process utilising only one staff member. This shows the inefficient use of labour resources.

Question 14: How long does the cash-up of the tills take at the end of a shift?

Table 4.12 Time taken to cash up tills at end of shift

		Frequency	Percent
Valid	<15 mins	17	48.6
	16 - 30 mins	14	40.0
	31 - 45 mins	2	5.7
	46 - 60 mins	1	2.9
	>60 mins	1	2.9
	Total	35	100.0

There are 18 respondents that still take more than 15 minutes to cash-up the tills at the end of shift. This represents a large portion of time spent away from the front till point that could be used to serve customers.

Question 15: Do you make use of a cash-in-transit company for cash collections?

Table 4.13 Cash in transit collections

		Frequency	Percent
Valid	Yes	33	94.3
	No	2	5.7
	Total	35	100.0

Nearly all respondents, 94.3%, utilise the service of a cash-in transit (CIT) company for the transport of the cash from their premises to the cash centre for processing which improves cash security management.

Question 16: If yes, how long does it take for the cash to reflect in your bank account once the money is collected?

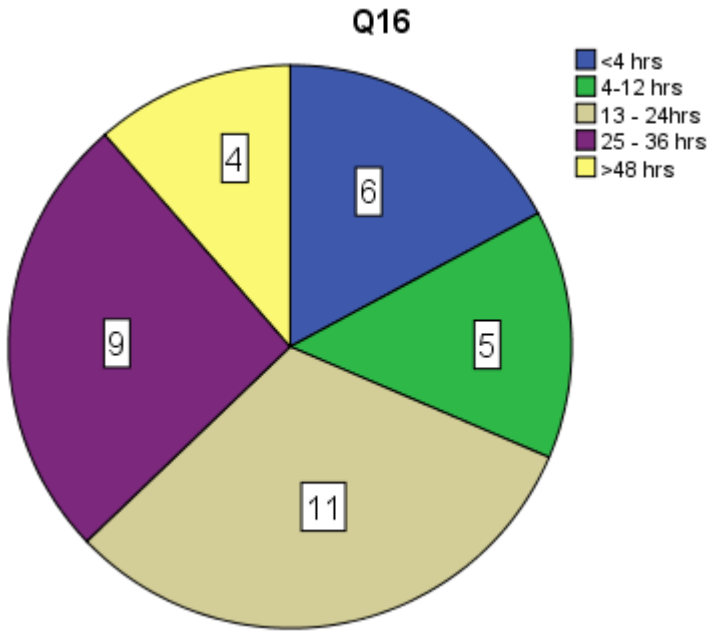

Figure 4.7 Time taken for collected money to reflect in bank account.

Cash flow is very important to a fuel retailer who operates from fixed margins. Most sites get the use of the money once it has cleared in the bank account.

As shown above majority of the respondents must wait for 13-24 hours from the time the cash is collected off their fuel site till it is cleared in their account.

This delay will be significant at the end of the month when fuel is ordered and needs to be paid for upfront. This process is performed to negate the effects of the legislated monthly price adjustments of fuel to the retailers.

Question 17: How many times do you experience shortages/discrepancies at the cash processing centre in a month?

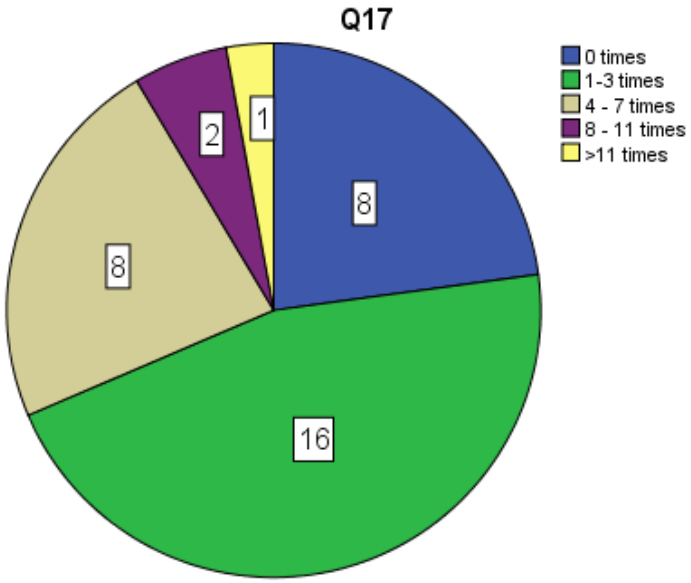

Figure 4.8 Number of shortages reported by the cash centre per month.

With regards to the cash shortages reported per month from the cash centre, most respondents, as shown in figure 4.8 above, indicated that they experience 1 to 3 shortages per month.

Question 20: The time taken to cash-up a till is acceptable.

Table 4.14 Time taken to cash up a till

		Frequency	Percent
Valid	Strongly agree	10	28.6
	Agree	23	65.7
	Disagree	2	5.7
	Total	35	100.0

Overall 65.7% of respondents agree that they are satisfied with the time taken to cash up a till. Only a mere 5.7% feel that the time taken is unacceptable.

Question 21: The time taken for the money to reflect in my bank account is acceptable.

Table 4.15 Response category on whether the time taken for the money to reflect in the bank account is acceptable.

		Frequency	Percent
Valid	Strongly agree	11	31.4
	Agree	8	22.9
	Disagree	13	37.1
	Strongly disagree	3	8.6
	Total	35	100.0

Most respondents, 37.1%, disagree with the statement that the time taken for the money to reflect in the bank account is acceptable and 8.6% strongly disagree. This is due to the need and importance of cash flow for a business to meet its financial obligations.

Question 22: Have you heard of an electronic/smart drop safe for cash management?

Table 4.16 Respondents who have heard of electronic/smart drop safes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	35	100.0	100.0	100.0

All respondents have heard of electronic drop safes and therefore all respondents were able to continue with the following survey questions.

Question 23a: My staff would accept using this system.

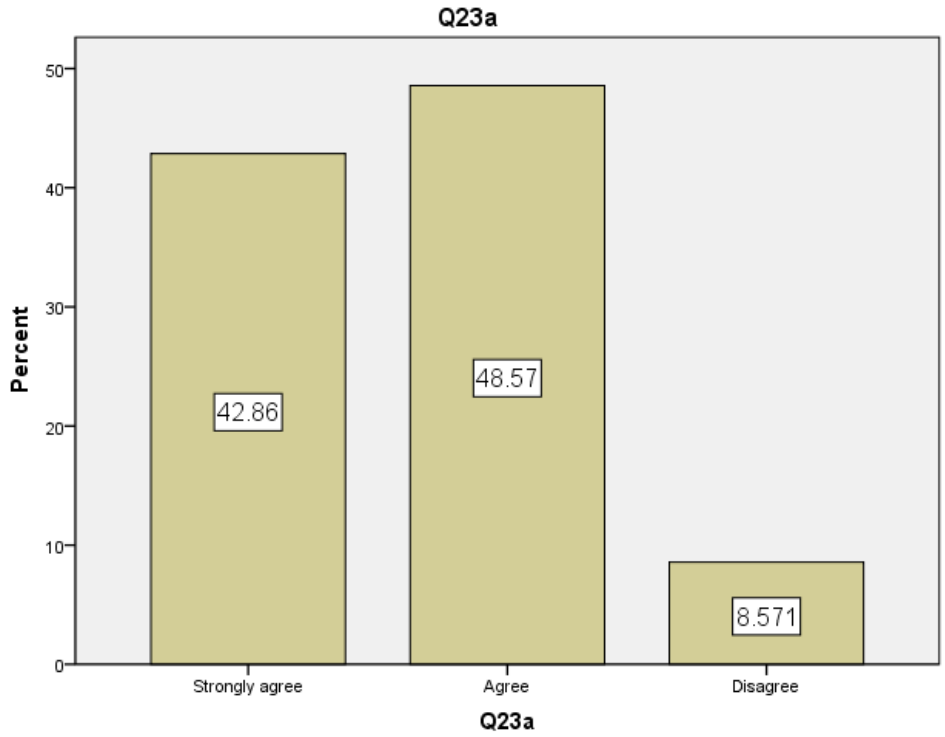

Figure 4.9 Response categories on whether the staff would accept using the electronic drop safe.

There is an agreement amongst the respondents 49% that their staff would accept using an electronic drop safe with 43% in strong agreement. Only 8% have disagreed.

Question 23b: My staff would feel safer using this system.

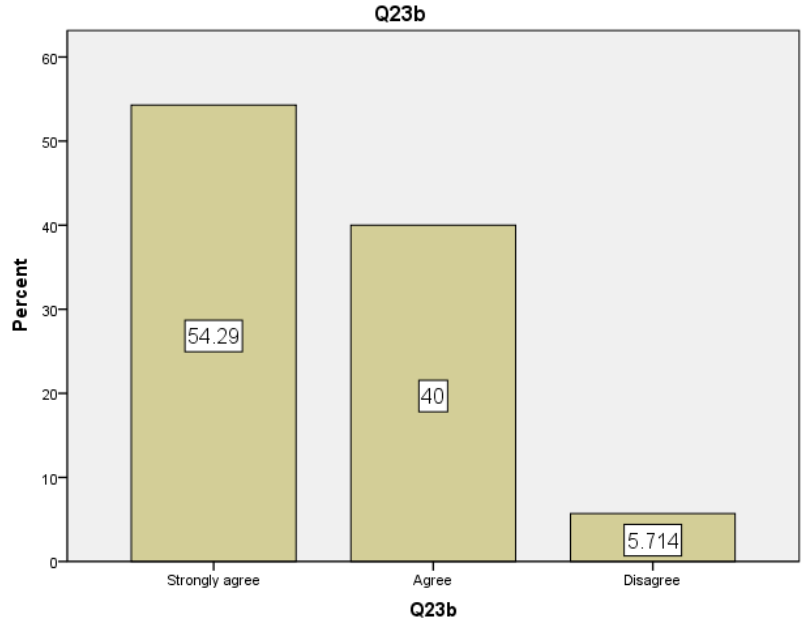

Figure 4.10 Response categories on whether the staff would feel safer using the electronic cash management system.

54.29% of respondents strongly agree and 40% agree that their staff would feel safer using the electronic cash management system with only 5.7% disagreeing.

Question 23c: Using this system would speed up my cash-up times

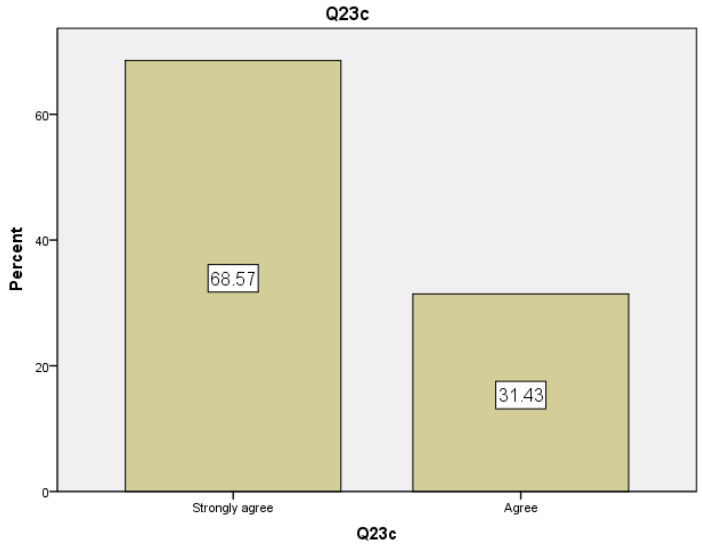

Figure 4.11 Response categories on whether the electronic cash management system would speed up the cash-up times.

There is strong agreement of 68.6% and 31.4% agreement amongst the respondents that the electronic cash management system would speed up the cash-up times. There were zero responses for disagree and strongly disagree.

Question 23d: I feel that same day cash settlement would improve my cash flow and help my business.

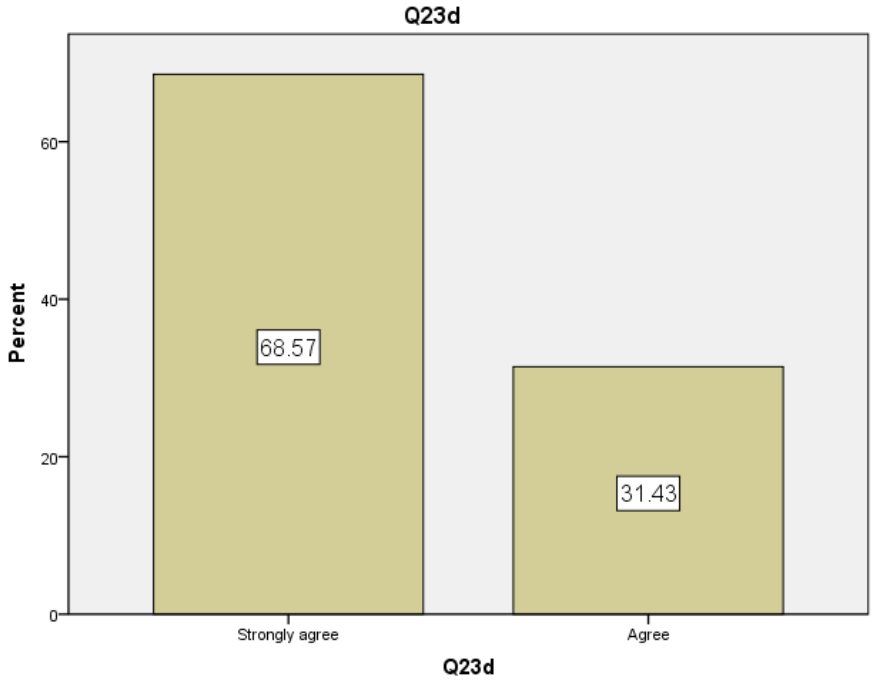

Figure 4.12 Response categories on whether the respondents feel that same day cash settlement would improve their cash flow and help their business.

Based on the responses 68.6% feel in strong agreement and 31.6 % are in agreement that same day cash settlement would improve their cash flow and help their business.

Question 23e: This system would reduce counting and reconciliation errors.

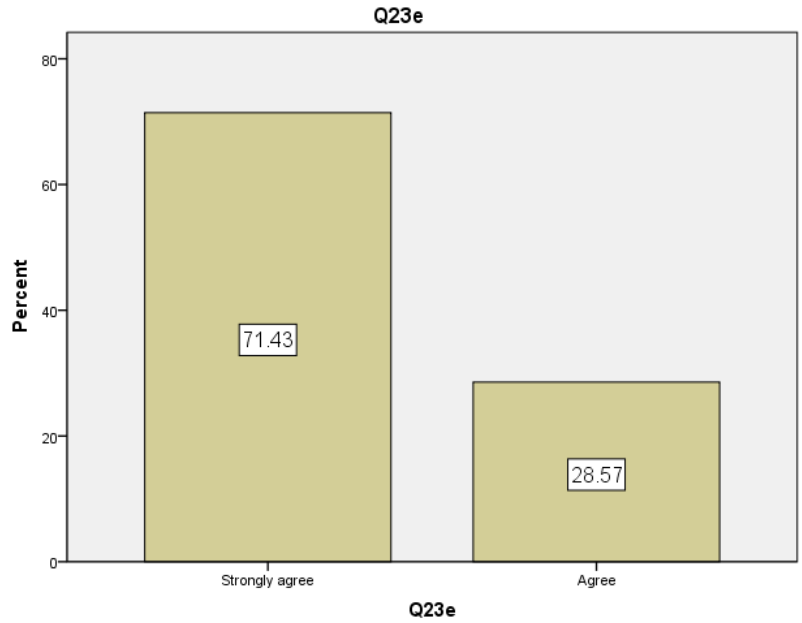

Figure 4.13 Response categories on whether the electronic cash management system would reduce counting and reconciliation errors

With regards to the reduction of counting and reconciliation errors, most respondents, 71.4% strongly agree that statement and 28.6% are in agreement. This would indicate that all respondents feel that there is a benefit of reducing counting and reconciliation errors by using the electronic cash management system.

Question 23f: This system can reduce my cash management cost.

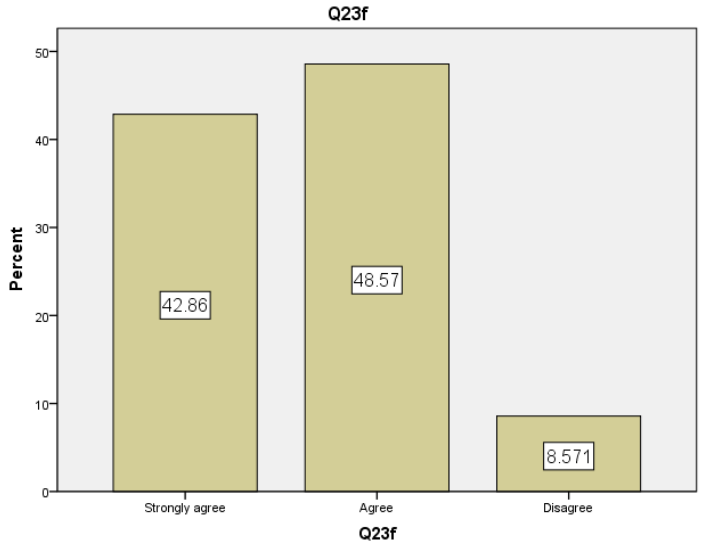

Figure 4.14 Response category on whether the electronic cash management system can reduce the cash management cost.

48.6% of respondents agree that using the electronic cash management system can reduce their cash management cost. There is small percentage of 8.6% who disagree with the statement of a reduction in cash management costs.

Question 23g: Having web based access to my cash totals would be useful

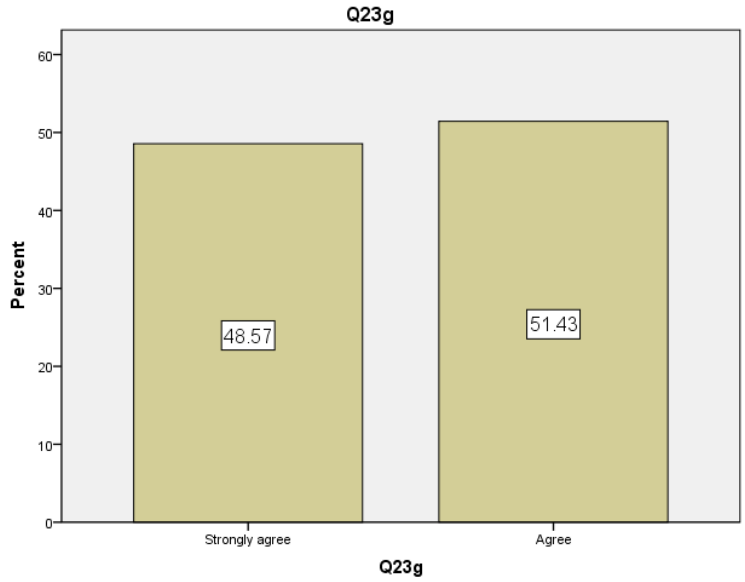

Figure 4.15 Response categories on whether web based access to cash totals would be useful

There were zero respondents who indicated that they disagree or strongly disagree that web based access to cash totals would be useful, with 48.6% in strong agreement and 51.4 % in agreement. This would indicate that all respondents feel that there is a benefit of having web based access to cash totals.

Question 23h: It will eliminate any fraudulent notes being accepted

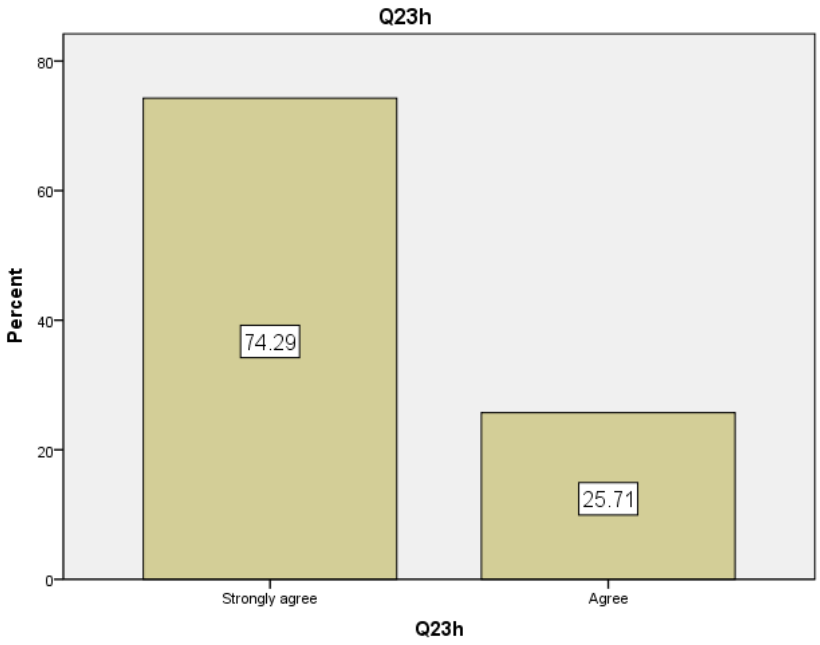

Figure 4.16 Response categories on whether the electronic cash management system would eliminate any fraudulent notes being accepted

It is noted the majority of the respondents strongly agree with this statement with the next highest response agreeing. Both these responses make up 100% of the total number of responses thereby implying that the electronic cash management system would eliminate any fraudulent notes being accepted.

4.3 Summary

The data obtained from chapter 3 was presented as statistics comprising of the following tests

- Spearman's rho test
- Frequency statistics
- Regression analysis

Due to the nature of the responses provided there were 3 correlations that were made when the data was analysed. However, evaluation of the frequencies regarding the respondent's perceptions on electronic cash management system proved to be very positive. Regression analysis did not produce any significant predictors due to the small sample size.

The following chapter, chapter 5, will provide the discussion, conclusion and recommendation of this study based on the interpretation of the results from this chapter.

Chapter 5

Discussion, Recommendations and Conclusion

5.1 Introduction

The main aim of the study was to find if using an electronic cash management system would be beneficial to the business in terms of security, administrative work and cash flow.

The objectives of the study are as follows:

- To explore and evaluate the viability of an electronic cash management system.
- To establish an acceptance of electronic cash management system by the staff.
- To assess the viability based on the clients perceptions

Since electronic cash management systems have been in the market for approximately 5 years, electronic cash management is a relatively new concept in an extremely old industry. There have been no known research locally or internationally that investigates the viability on electronic cash management systems especially in the fuel retail industry.

As a result of the investigation into the objectives of the study, a generic decision model was developed which may be used to improve the cash handling process at store level for fuel retail sites in South Africa. Finally, some suggestions were made regarding the implementation and maintenance of the electronic cash management system.

5.2 Discussion of Results

Below is an in-depth interpretation of the research findings from chapter 4

5.2.1 Biographical data

Most of the respondents were from the ages of 31 to 40 years old who had 5 to 10 years' experience in managing or owning a fuel retail site. They have been in the industry for a considerable time and their responses would be reliable.

Most respondents were Indian and Black males and this shows a dominance of the industry by males. The area of study was confined to Phoenix and Inanda so it is conceivable that most respondents were Indian and Black. Phoenix and Inanda are townships that are mainly populated by Indians and Blacks as this was their respective settlements during the group areas act.

5.2.2 Correlations

Correlation between Question 5 and Question 13

An analysis of the data provided a correlation between the number of persons involved in the cashing up process and the number of shortages experienced in a month. As the number of people involved in the cash up process increased so too did the number of shortages experienced increase.

The human element is important in internal control of cash. Even a good system can become ineffective as a result of employee fatigue, carelessness, or indifference. Employees may become tired and not bother to count accurately. Occasionally two or more employees may work together in order to evade set controls.

Eliminating cash shrinkage remains an elusive goal for most store operators. The basic necessity of multiple employees handling cash throughout the day complicates the ability to manage cash.

One of the benefits of using the electronic cash management system is that the cashier is the only person who physically handles their cash. The notes are deposited in a note validator and it is counted electronically and also verified for authenticity. The device then prints a cash receipt showing the amount deposited which is then used to reconcile the shift totals with the point of sale system.

There is no handover to another person and therefore there is accountability and a paper trail. With fewer people involved in the process and with no handovers the electronic cash management system could reduce the number of shortages experienced at the fuel retail site. This would improve inefficiencies and reduce administrative work and reconciliations and therefore would favour the viability of an electronic cash management system.

Cash is secured more quickly and with greater accuracy, so employees familiar with the cash handling process are less prone to commit theft or provide information that might lead others to do so. The main drivers for improving efficiency in cash handling are to minimise labour cost and increase security.

Correlation between Question 7, Question 23e and Question 23f

A correlation between the number of shortages experienced due to dye stained or fraudulent notes and the respondents perception of the benefits of the electronic cash management system regarding reduction of reconciliation errors and reduction of cash handling costs.

The first risk hurdle a store faces is accepting counterfeit notes. Ultra-violet light detection units are a common check but this takes time and adds to the cost by slowing cashiers down and lowers customer service levels.

The electronic cash management device is able to detect shortages at the point of tender. This is accomplished by the note validators. Since the note counters scans each note individually and verifies its value electronically and the unit is a closed

system, there is no possibility for there to be a variance between the amount inserted and the amount counted by the electronic cash management device. Since the money is deposited into sealed containers there is no variance when the money is counted at the cash centre.

A reduction in shortages due to fraudulent note and reconciliation errors due to the electronic cash management system would make the adoption of the system viable for the retail fuel industry.

The electronic cash management system detects fraudulent notes as it has sensors specific to measure and reject cash notes based on the embedded features in the South African bank note as shown below.

There are security features on all cash notes in South Africa.

In an effort discourage unlawful reproduction/counterfeiting of banknotes, the South African Reserve Bank employs numerous security features embedded in the banknote. The paper and the print on the banknote can be tested as a secure instrument of payment by touch and optical inspection along with machine-readable security features. The South African banknote has various sizes as shown below.

Table 5.1 South African Banknote sizes

: **Denomination**	**Height**	**Length**
R10	70 mm	128 mm
R20	70 mm	134 mm
R50	70 mm	140 mm
R100	70 mm	146 mm
R200	70 mm	152 mm

Adapted from: “South African Banknote Gallery” [online]. Available www.banknotes.com (Accessed 12 January 2012)

The various sizes are attributed to the unlawful act of “bleaching” and reprinting on the same paper a higher denomination value.

Other security features include:

- The feel of the paper: The paper is a cotton base and has a unique texture
- Characteristic sound: Banknotes have a crackling sound when controlled
- Print Quality: High quality inks are used for the cotton fibre paper
- Raised Printing: A raised printing technique produces a rough feel
- Micro Lettering: The words South African Reserve Bank is printed on the top right corner.
- Unique Serial Number: A unique serial number is printed on the top left and bottom right hand corners.
- Fluorescent Feature: Under a fluorescent light certain features of the note illuminate.
- Windowed Security Thread: A silvery stripe is weaved into the paper with SARB printed on it.
- Watermark: A mirror image of the main motif appears on the note when held against the light
- Perfect registration: The printing is of the highest quality, with the front and the back of the note are in perfect registration.

With these security features in mind, many of them are not detectable with the naked eye and a ultra violet light may not be enough protection against the acceptance of fraudulent notes at the till point and then depositing in the manual drop safe.

Using the electronic verification methods employed in the note validator it can detect and reject notes that are fraudulent. The note validator has various sensors that detect the security features discussed above. This eliminates the acceptance of fraudulent notes.

Likewise dye-stained notes are also rejected using the same tests. According to the South African Reserve Bank awareness communication, “A Stained Note is probably a Stolen Note.” Banknotes get dye-stained to protect the cash from getting stolen as it renders the cash useless. These notes are also scanned electronically and rejected thereby eliminating the acceptance of dye-stained notes.

Correlation between question 17 and question18

A correlation between the number of shortages per month and the perceptions of respondents' current cash handling process was analysed.

As the number of shortages at the cash centre increased so too does the degree of dissatisfaction with their current cash handling process increase.

With an increasing number of shortages at the cash centre this would imply an increasing number of reconciliation errors and increased costs due to time wasting and variance reports being generated. This increases the degree of dissatisfaction experienced by the respondent.

Currently, cash management in the fuel retail sector remains primarily a manual operation. Automation offers significant potential for increased productivity of the entire process, from the point of sale to posting cash to the bank.

As previously discussed the electronic cash management system reduces reconciliation errors and eliminates cash shortages at the cash centre. This improvement in the number of shortages would increase the satisfaction of the cash handling process experienced by the respondent. With an increase in the respondents dissatisfaction with their current cash handling processes this improves the viability of the electronic cash management system due to the systems elimination cash shortages.

5.2.3 Frequencies

Nearly 46% of the respondents encountered an armed robbery in the past 3 years where money was taken. Of these that were involved in the armed robbery, over 41% had staff members that were injured in the incident.

In addition, over 94% of respondents feel that their staff would feel safer using the electronic cash management system. According to Kreitner and Kinicki (2008:190), “perceptions of fear, harm and anxiety are associated with the onset of illness such as depression.” In theories of motivation, Maslow identifies safety as one of the needs. To be safe from physical and psychological harm is a level 2 requirement. Providing an environment where employees feel physically safe will improve motivation. With employees feeling safer and more protected using the system they are more likely to accept using the new electronic cash management processes due to a perceived benefit.

“Cash is the lifeblood of any business because it is the most liquid of assets and offers a company both liquidity and flexibility,” Li (2005:70)

Cash is a fundamental resource for any business and a strong cash flow is needed in the fuel retail industry as the suppliers for fuel are paid in full up-front. This severely hampers the cash flow since the inflows of the cash is over a period of time. During this period of time the business still needs to fulfil its financial obligations to remain liquid. Therefore the faster the money can move from the till point to the bank account would improve the cash flow.

Only 17% of respondents get their money in less than four hours into the operating bank account. Most respondents indicated they have to wait from 13 to 24 hours and 11% indicated it takes more than 48 hours.

This delay in cash being available will be significant at the end of the month when fuel is ordered and needs to be paid for upfront. 45.7% of respondents strongly disagree or disagree with the time taken for the money to reflect in the bank account.

Using an electronic cash management system the device electronically transmits the amount of cash in the device to the nominated bank account via a modem. The money is available for use immediately thereby increasing cash flows. 100% of respondents indicated that they either agree or strongly agree that the cash management system would improve their cash flow and help their business.

Therefore the electronic cash management system would improve the cash flow of the business.

Utilising the ability of the modem to transmit data electronically, the system can also transmit the cash totals, cash collection times or any management information required from the device. This data is uploaded to the server and can be accessed remotely via a web site link.

This provides much needed flexibility in the system that allows management/owners to remotely access information on daily takings without needing to go to the office or controlling multiple sites. 100% of respondents had favourable responses with regards to the usefulness of web-based access. This would reduce administrative work as administrative functions can be centrally controlled and executed. A reduction in administrative work would also reduce inefficiencies in traditional cash management processes.

5.3 Recommendations

The recommendations of the researcher are based on the data collected via the research conducted and analysis of the data. Based on the correlation and frequency analysis there is a definite need for the electronic cash management system in the fuel retail industry.

As there is limited data available on the impact of electronic cash management systems on other industries due to the relative short time the electronic cash management system has been on the market, there is not enough secondary data to support any concrete recommendations.

The benefits of electronic cash management systems are perceived to be needed in the industry based on the indications from the respondents. The notion of it being a “nice to have” as opposed to a necessity still needs further investigation; however the current evidence does tend towards recommending in the affirmative for the viability of electronic cash management systems for fuel retailers. Based on the

correlation and frequency analysis of the data, the objectives of the study have been answered.

Objective 1

1. To explore and evaluate the viability of an electronic cash management system.

As discussed above the data provided by the respondents from the correlation studies indicate that the electronic cash management system is a viable system as there are shortcomings in the traditional cash handling process that can be addressed by the technology provided by the electronic cash management system.

Objective 2

2. To establish an acceptance of electronic cash management system by the staff.

According to the frequency study of questions 23a and 23b, 91% and 94% of the respondents either agree or strongly agree that their staff would accept using the system and would feel safer. The retailer's exposure to violent, armed robbery is directly proportionate to the amount of readily accessible cash either in the tills or in the back office. Poor cash management will attract violent crime, displace customers, unnerve staff and undermine the trading environment to the detriment of the business.

Factors that contribute positively on any risk management assessment and in staff productivity depends on the psychology of employees based on what they perceive as a major risk in their personal capacity.

The use of an electronic cash management system removes the handling of cash and stores the cash in a secure safe thereby reducing the risk of armed robbery and increasing staff confidence.

Objective 3

3. To assess the viability based on the clients perceptions

The entire question 23 addresses the respondents' perceptions of the electronic cash handling process. An average of 97% of the respondents either agrees or strongly agrees on the positive benefits of the electronic cash handling system. This shows that they feel that the electronic system is a viable system.

The electronic cash management system provides

- **Increased security.** Implementation of the electronic cash management system re-engineers the cash-handling procedures for the fuel retailer, resulting in a higher level of security.
- **Improved cash flow.** The electronic cash management system allows a business to have access to the value of its cash instantly, much faster than would be possible with a traditional cash handling process.
- **Reduced cash-management costs.** The electronic cash management system allows the fuel retailers to reduce their costs for handling and managing cash. Employees and managers spend less time counting cash and reconciling receipts with the point-of-sale system, and the system eliminates counting errors and the logistics of transporting cash more frequently. Note counting and validation is performed at point of tender, with reduction in risk of accepting counterfeit currency.

There needs to be constant environmental scanning to ensure that technological advances can be incorporated into the electronic cash management system. The system cannot be marketed as a stand-alone product. It needs to seamlessly integrate with the clients existing systems. It should be lobbied as a value add sale that provides tangible benefits like cost/time saving and improved cash flow along with intangible benefits such as staff that feel safer and will therefore be more productive.

The savings in cashier and cash office supervisor time, the reduced risk and insurance costs, the instant crediting of the bank account and the improved security

the electronic cash management system offer all have to be weighed against the cost of the service.

It is clear that more research needs to be conducted before a recommendation can be made.

5.4 Recommendations for Future Study

This study is limited to the Phoenix and Inanda area. The ethnicities of the fuel retailers in these areas are mainly Indian with similar backgrounds. The sample is not truly representative of the demographics of South Africa.

The study was conducted in a township area of Phoenix and Inanda. There may be different results obtained from respondents based in other locations like the CBD. Studies of a similar size and nature could be done in various locations and the results collated for a more conclusive research.

This study looked at the viability of the product in a fuel retail environment from the perspective of the supplier of the electronic cash management system. This study does not look at the actual cost of the electronic cash management system versus the benefits to the fuel retailer.

Case studies could be performed based cost benefit analysis. Standardised quotations could be requested from suppliers of electronic cash management systems that could be compared to the tangible and intangible benefits. These case studies could form the secondary data lacking from this study.

The equipment and services available today offer a good opportunity to re-engineer the whole cash handling chain to reduce both risk and costs.

5.5 Conclusion

This is the first time this type of research has been conducted to the knowledge of the researcher. The study proved to be informative in that the recommendations of further studies and case studies in this field need to be developed and researched.

Based on the data collected from this study there are certainly benefits to be gained from the electronic cash management system. It is definitely viable for further studies to be conducted.

The impact of technology on business operations continues to improve management controls and measurement while enabling for profitability enhancement opportunities.

Electronic cash management systems in South Africa have introduced the opportunity for the retailer to reduce his costs of cash management and significantly improve his risk profile both within the store and whilst in the supervision of the cash in transit carrier. The electronic counting and crediting of the cash eliminates errors from manual counting and reconciliation. The store personnel have an accurate record of daily deposits, which simplifies and speeds up record keeping and accounting. Daily deposits increase cash flow for the retailer, as funds are available more quickly for payroll, restocking, expenses and other operational requirements.

5.6 Summary

This chapter provided the discussion of the results with an in-depth interpretation of the results generated in chapter 4. It highlighted the product offering provided the electronic cash management system. It also provided the recommendations of the study and the suggested the direction for future of further studies.

It provided the conclusion of the study by addressing the viability of electronic cash management system for fuel retailers in Phoenix and Inanda.

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Appendix 1

Questionnaire Ethical Clearance : Ref GSB 65/10

1. Age, in years

<20	20-30	31-40	41-50

2. Gender

Male	Female

3. Ethnicity

Black	White	Coloured	Indian

4. How long have you been involved in the management of a fuel retail outlet?

<2	2- <5	5-<10	10-<15

5. Do you experience shortages in your monthly cash reconciliation?

Yes	No

6. If Yes how much per month?

< R500	R1001 – R2000	R2001 – R5000	R5000>

7. Do you experience shortages due to counterfeit/dyestained notes

Yes	No

8. If Yes how much per month?

< R500	R1001 – R2000	R2001 – R5000	R5000>

9. Have you experienced an armed robbery in the 3 last year were cash was stolen?

Yes	No

10. If yes, how much cash was stolen, in Rands?

< 2000	2001 – 10000	10001– 50000	50000>

11. How many staff where injured?

0	1	2	3

12. Do you have a till skimming policy in place?

Yes	No

13. How many staff are involved in the cashing up process?

0	1	2	3

14. How long does the cash-up of the tills take at the end of a shift?

<15mins	16-30	31-45	46-60

15. Do you make use of a cash-in-transit company for cash collections?

Yes	No

16. If yes, how long does it take for the cash to reflect in your bank account once the money is collected?

<4 hrs	4-12 hrs	13-24 hrs	25-36 hrs

17. How many times do you experience shortages/discrepancies at the cash processing centre in a month?

0 times	1 - 3 times	4 -7 times	8-11 times

18. I am content with the current cash handling process.

Strongly Agree	Agree	Disagree	Strongly Disagree

19. My staff feel safe handling the cash

Strongly Agree	Agree	Disagree	Strongly Disagree

20. The time taken to cash-up a till is acceptable.

Strongly Agree	Agree	Disagree	Strongly Disagree

21. The time taken for the money to reflect in my bank account is acceptable.

Strongly Agree	Agree	Disagree	Strongly Disagree

22. Have you heard of an electronic/smart drop safe for cash management?

Yes	No

23a. If Yes,
My staff would accept using this system.

Strongly Agree	Agree	Disagree	Strongly Disagree

23b. My staff would feel safer using this system

Strongly Agree	Agree	Disagree	Strongly Disagree

23c. Using this system would speed up my cash-up times

Strongly Agree	Agree	Disagree	Strongly Disagree

23d. I feel that same day cash settlement would improve my cash flow and help my business

Strongly Agree	Agree	Disagree	Strongly Disagree

23e. This system would reduce counting and reconciliation errors.

Strongly Agree	Agree	Disagree	Strongly Disagree

23f. This system can reduce my cash management cost.

Strongly Agree	Agree	Disagree	Strongly Disagree

23g. Having web based access to my cash totals would be useful

Strongly Agree	Agree	Disagree	Strongly Disagree

23h. It will eliminate any fraudulent notes being accepted

Strongly Agree	Agree	Disagree	Strongly Disagree

Appendix 2

Turnitin Report