THE USE OF MOBILE COMMERCE TO IMPROVE THE SERVICES OF LIFE INSURANCE POST SALE ACTIVITIES

REXFORD AFRIFA

Submitted in partial fulfilment of the requirements for the Degree of Masters in Business Administration at the Nelson Mandela Metropolitan University (NMMU) Business School

Promoter: Dr. J. Burger

December 2008
DECLARATION

I, Rexford Afrifa hereby declare that:

• The work in this treatise is my own original work;

• All sources used or referred to have been documented and recognized;

and

• This research has not been previously submitted in full or partial
  fulfilment of the requirements for an equivalent or higher qualification at
  any other recognized Educational Institution.

REXFORD AFRIFA

December 2008
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REXFORD AFRIFA

December 2008
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<thead>
<tr>
<th>ACRONYMS</th>
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<tbody>
<tr>
<td>B2B</td>
<td>Business to Business</td>
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<td>B2C</td>
<td>Business to consumer</td>
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<td>C2C</td>
<td>Consumer to Consumer</td>
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<td>C2B</td>
<td>Consumer to Business</td>
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<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
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<td>CDMA</td>
<td>Code Division Multiple Access</td>
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<td>CRM</td>
<td>Customer Relationship Management</td>
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<td>ECR</td>
<td>Efficient Customer Response</td>
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<td>EDI</td>
<td>Electronic Data Interchange</td>
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<td>EMS</td>
<td>Enhanced message service</td>
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<td>EM</td>
<td>Electronic Markets</td>
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<td>FAIS</td>
<td>Financial Advisory and Intermediary Services</td>
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<td>FSA</td>
<td>Field Sales Automation</td>
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<td>FSB</td>
<td>Financial Services Board</td>
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<td>FVM</td>
<td>Fit Viability Model</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>IBER</td>
<td>Insurance Business Environment Rating</td>
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<td>IDT</td>
<td>Innovation Diffusion Theory</td>
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<td>ISO</td>
<td>International Standardization Organization</td>
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<td>ISP</td>
<td>Internet Service Provider</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>LOA</td>
<td>Life Offices Association</td>
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<td>MMS</td>
<td>Mobile Messaging Service</td>
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<td>NCA</td>
<td>National Credit Act</td>
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<td>PIN</td>
<td>Personal Identification Number</td>
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<td>SAIR</td>
<td>South-African Insurance Report</td>
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<td>SFA</td>
<td>Sales Force Automation</td>
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<td>TAM</td>
<td>Technology Acceptance Model</td>
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<td>Time Division Multiple Access</td>
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<td>TTF</td>
<td>Task Technology Fit</td>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<td>WAE</td>
<td>Wireless Application Environment</td>
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<td>WAP</td>
<td>Wireless Application Protocols</td>
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<td>WDP</td>
<td>Wireless Datagram Protocol</td>
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<td>WI-FI</td>
<td>Wireless Fidelity</td>
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<td>WSP</td>
<td>Wireless Session Protocol</td>
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<td>WTP</td>
<td>Wireless Transaction Protocol</td>
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<td>WTLS</td>
<td>Wireless Transport Layer Security</td>
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<td>WWW</td>
<td>World Wide Web</td>
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ABSTRACT

Mobile commerce, due to its inherent characteristics of mobility and reachability in enhancing personalized services provides an excellent means for life insurers to exploit such avenue in their service offerings. The objective of this study was to determine whether mobile commerce can be used to improve the services of life insurance post-sale activities. This objective was achieved with the relevant literature and empirical study.

To accomplish the objective of this treatise, a triangulated research approach was selected and a multiple-case study consisting of four cases was conducted. The four cases selected comprised of leading insurers with large market share in the life insurance market in South-Africa. The primary data were collected through questionnaire and face-to-face interviews with selected respondents.

The main finding shows that the respondents had a positive view about mobile commerce and its application in their companies. This was demonstrated by 80 percent of respondents who agreed that mobile commerce was more of an opportunity rather than a challenge or even a threat for the life insurance market. The results also indicate that customer relationship management, mobile messaging services and field service automation functions were used by all the insurers; although minor discrepancies were observed due to the efficiency of each firms IT infrastructure. The Internet was found to assist in the collection of more precise data, to increase service performing abilities.

Some of the major obstacles that were found to hinder the deployment of mobile commerce in the industry were security concerns, low and infrequent internet usage and performance by supporting industries. Cumbersome and inefficient legacy systems were declared as the greatest technological weakness particularly by respondents from case 1 and 2. Conversely, hardware and network infrastructure, lack of software packages, lack of technical expertise and the fear of disintermediation was rated low in hindering the deployment of mobile commerce.
However, according to the findings the key benefits derived from engaging in increased mobile commerce activities include enhancing customer contact and service, more transparency and speed of claims management, increasing client retention and policy extension rates hence increasing overall company profit.
KEY WORDS

• Life insurance market
• Mobile commerce
• Life insurance value chain
• Fit and viability assessment
• Electronic customer relationship management
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CHAPTER ONE

BACKGROUND AND PROBLEM STATEMENT

1.1 INTRODUCTION

The chapter starts with the research background to provide a general overview about the area of the treatise. The problem statement will follow after which the objectives and the research questions will be formulated. Finally, definitions of key concepts; key assumptions; significance of the research; research methodology; and structure of the treatise will be provided.

1.2 BACKGROUND

In recent years (2008), several global mega-trends have started to emerge creating exciting business opportunities and concepts. The advancement of Information and Telecommunication Technologies and the World Wide Web (WWW) allows new types of interaction between organisations and their consumers around the globe. Thus creating a network where geographically dispersed computers communicate with each other through the internet.

Electronic commerce encourages equal opportunities for all B2C companies, as there are fewer barriers to marketplace entry (Rowley, 2002: 7). The insurance industry however provides a suitable model that combines both B2C and B2B applications. The surge in mobile handset use throughout the world, the rapid growth of the Internet and the proliferation of personal digital assistants are expanding the e-commerce market in which mobile commerce (m-commerce) is expected to flourish (United Nations Conference on Trade and Development [UNCTAD], 2002). Widespread usage of mobile technology extends beyond the means of personal communication. In addition it is also used to receive time sensitive and critical business information and to send messages to consumers regardless of time or location.

According to Paavilainen (2002: XIV) the phenomenal explosion of the internet and rising mobile phone penetration have paved way for advanced mobile application that enables both consumers and corporations to access
personalized services. This is confirmed by Lim & Siau (2003: 1) who state that advances in wireless technology increases the number of mobile device users and give pace to the rapid development of m-commerce using these devices. Moreover, the authors explained that due to the inherent characteristics of wireless technology such as ubiquity, personalization, flexibility and dissemination, m-commerce promises business unprecedented market potential, great productivity and high profitability. With the number of mobile device users exceeding that of personal computer users, conducting business and services over these mobile devices is becoming real and attractive.

Although mobile commerce shares many similarities with traditional e-commerce it extends the latter by offering a wide range of personalized and location aware services to users. This is done by integrating a myriad of technologies together. However, with the rapid growth of information technology infrastructure and radical economic reforms, online insurance services through mobile devices can offer remarkable opportunities in the South African life insurance industry. Given these facts, there has been some reluctance on the part of the insurance industry to adopt e-commerce such as lack of proper software infrastructure, non awareness among consumers and security concerns.

1.3 PROBLEM STATEMENT

The insurance industry represents one of the most important service industries regarding its basic functions for the South African economy. In recent times highly technology driven and industrialised economies are faced with various risk profiles than ever before.

Previously in South Africa and around the world many insurance products were distributed mainly through agents and independent brokers. Since huge investments are needed to build up such distribution networks, established players were generally well protected against new competitors. Conversely, in the post internet era capital investments needed to enter the insurance market has been reduced drastically. Consequently, new firms are faced with lower entry barriers to compete in the market (SwissRe, 2004).
Since the insurance business is largely based on information, then Internet applications are likely to have a great impact on these products and services. The presence of the Internet also increases transparency in the insurance market, giving rise to an increase in consumer bargaining power. The internet allows virtualisation of organizational networks, increasing the opportunity for systematic co-operative service offers. These information-intensive industries are fertile grounds for the play of forces that have spawned e-commerce (Price Waterhouse Coopers [PWC], 2008: 55).

The application of m-commerce in the South-African life insurance industry is in its initial stages (UNCTAD, 2002). The use of the Internet is growing at a fast pace in the country and most insurers have Internet presence. A critical examination of the life insurance value chain shows that mobile commerce methods are suitable for marketing, field sales automation, policy administration and customer relationship management in the life insurance business.

Recently (2008), some form of marketing and post sale services are being conducted via wireless devices such as mobile phones, and Personal Digital Assistants (PDA's). This development provides opportunities for companies who are innovative to use this medium to reach out to target customers. On the other hand the need to capitalize on m-commerce opportunities not only entails direct investment cost in terms of acquiring new information technology infrastructure, but also the indirect costs of having to change their existing business models.

Furthermore, life insurance companies have to revamp their business processes and corporate structures, which can lead to many different internal conflicts. Internet marketing threatens traditional distribution channels and therefore tends to meet with strong resistance within the companies (PWC, 2008: 21). Nonetheless, some insurers may pursue a dual strategy and try to balance between the traditional distribution channels and internet distribution and services. Given these facts it is necessary to investigate into how to use mobile commerce to improve the services of life insurance post-sale activities.
1.4 RESEARCH OBJECTIVES AND QUESTIONS
In considering the future for mobile commerce in the South-African life insurance market a variety of areas needs to be explored. This research will be conducted as part of undertaking this exploration. The specific objectives of the research are as follows.

- Have an understanding of the South African insurance industry particularly current trends in the life insurance market, in order to explore to what extent the industry has embraced mobile commerce and where it is being used.

- Examine current practices to determine the life insurance industry’s view of where it wants to go with regards to mobile commerce and what its main concern will be in this area.

- Identify obstacles and potentials that will need to be addressed for increased mobile commerce activities to occur in the life insurance industry.

The research is intended to address the main problem which is “How can mobile commerce be used to improve the services of life insurance post-sale activities?” Three research questions (RQ) have been extracted based on the initial review of the available literature. Therefore the main problem of this research can be resolved by identifying the following sub-problems.

**R.Q.1** What are the views of life insurance companies regarding mobile commerce and how is it currently used in life insurance companies?

**R.Q.2** What are the factors or issues hindering the use of mobile commerce applications in life insurance post sale activities?

**R.Q.3** How does mobile commerce affect competitive positioning and what are the benefits of mobile commerce to consumers and insurance companies?
1.5 DEFINATION OF KEY CONCEPTS

- **Fit-Viability Model** is a tool to measure whether a technology is properly used. Two dimensions are used to evaluate technology initiatives. One is fit and the other is viability. Fit measures the extent to which new network applications are consistent with the core competence, structure, value and culture of organization. Viability measures the extent to the value-added potential of new network applications, requirements of human resource and capital needs (Liang & Wei, 2004).

- **Life Insurance** is an agreement between an insurance company and a policy holder. The insurance company assures the payment of a particular amount of money to the insured person in an event of sickness, accident or death. For this, the policyholder pays a specific amount of money at regular intervals, which is known as the premium. The designated beneficiary of the policy receives the associated benefit if an event occurs that is covered by the policy (Terrezas, 2008).

- **Life Insurance Value Chain and business process** generally a value chain refers to the chain of operations, each adding value in some sense to the realization of a service or product. On the other hand with life insurance there are several primary steps that insurers take. First, it determines a premium rate for the risk it intends to insure against particular causes of damage (e.g. when providing a sickness or accident cover). It also establishes adequate reserves to cover deviations from average, expected losses. Finally, the insurer determines whether any particular clients are likely to attract greater than average misfortune and decide how to adjust the rates it proposes to individual clients (SwissRe, 2004).

- **Mobile Commerce** is an extension of electronic commerce in a wireless environment. According to Elliot and Phillips (2004: 3) mobile commerce is the use of mobile handheld devices to communicate, inform, transact and entertain using text and data via connection to public and private
networks. The use of wireless technologies extends the nature and scope of traditional electronic commerce by providing the additional aspects of mobility and portability.

- **Technology Acceptance Model** explains the determinants of user acceptance of a wide range of end-user computing technologies. The model is based on the Theory of Reasoned Action (TRA). Technology Acceptance Model (TAM) points out that perceived ease of use and perceived usefulness affect the intention to use. Perceived ease of use can be defined as the degree to which a person believes that using a particular system would be free from effort. Perceived usefulness is the degree to which a person believes that using a particular system would enhance job performance (Davis, 1989).

1.6 DELIMITATION OF THE RESEARCH

Due to the limited amount of time that was available for this study, the focus of the research was narrowed down and measures were taken to set parameters around the study. The research was based mainly on the life insurance industry in South Africa as defined by the Life Offices Association (LOA). The companies that were used as case studies were Old Mutual, Momentum, Sanlam and Discovery life insurance.

Both questionnaire and face-to-face interviews were conducted in their Port-Elizabeth offices. The internet was used as a medium to send questionnaires to the above mentioned companies in Cape-town and Johannesburg.

1.7 KEY ASSUMPTION

The increase in the use of various mobile commerce methods will enable life insurance companies in South-Africa to improve their post-sale activities.

1.8 SIGNIFICANCE OF THE RESEARCH

Mobile applications provide end users with added values such as mobility and reachability and also the capacity to find users’ locations. Another characteristic inherent in mobile applications is the flexibility in arranging tasks. Mobile commerce is limited to mobile telecommunications networks which are
accessed through wireless handheld devices such as mobile phones, hand held computers and Personal Digital Assistants (PDA's). It is predicted that mobile device users will increase dramatically in the near future. Nokia (2000) estimated that there will be a billion mobile phone subscribers worldwide by 2005. This was proved true by the end of 2006 where there were one billion cell phone accounts worldwide.

The rapid growth in mobile telephony provides a strong model for the adoption of uninterrupted mobile commerce. The transition from fixed to mobile telephony will almost certainly be followed by a similar transition from fixed to mobile computing in the future. Therefore, the deployment of mobile commerce methods offer life insurance companies opportunities to improve their services with potential and existing clients.

The collection of data and information from this study will make a major contribution in establishing whether mobile commerce functions is successful in improving the services of life insurance post-sale activities, and inevitably customer satisfaction.

1.9 RESEARCH METHODOLOGY
The procedures followed to solve the main problem and sub-problems included a literature and an empirical study. A brief discussion of the literature and empirical study will follow.

1.9.1 LITERATURE STUDIES
The literature study was conducted to identify key elements in the life insurance market, an overview of electronic commerce applications as well as mobile commerce technologies and concepts. The secondary sources used included the following:

- Text books, financial magazines and theses sourced from the Nelson Mandela Metropolitan University library; and
- The internet was also used to search financial and management databases as well as accredited journals for relevant information.
1.9.2 EMPIRICAL STUDIES
Primary data was collected through the empirical study using a standard questionnaire that was distributed mainly to functional heads of the selected companies. The structured questionnaire consisted of closed and open ended questions and was developed based on information gained from various literature sources.

The researcher made use of a four point forced Likert-scale to measure the respondent's feedback of the questionnaire. The Likert-scale is defined as an ordinal scale format that asks respondents to indicate the extent to which they rate a series of statements about the study.

The sample size of this study consisted of 20 employees from four life insurance companies. The respondents were requested to complete a questionnaire. In addition four out of the twenty respondents where specifically selected for personal interviews. The data collected was presented and analysed. Finally conclusions and recommendations were drawn to verify the key assumptions underlying this study.

1.10 PROBLEMS AND LIMITATIONS
The professional experience of the respondents in terms of the life insurance market and mobile commerce applications was very crucial. This gave an indication of the expertise and knowledge of the respondents. The results show that 75 percent of the respondents with over ten years experience in insurance were also very familiar with the concept and application of mobile commerce. This therefore reduced the limitations in terms of the information provided in this research.

1.11 STRUCTURE OF THE TREATISE
The treatise is divided into six chapters. In Chapter 1, a detailed background and rationale, research objectives and questions as well as the research methodology for the study was provided. The problems and limitations encountered during the study were discussed.
Chapter 2 discussed the insurance industry with particular emphasis on the life insurance market, value chain and business process. Enabling technology such as the internet and electronic commerce was also provided. The impact of electronic commerce on the insurance industry was discussed.

Chapter 3 presented a detailed discussion on the various concepts and technologies of mobile commerce. The fit and viability assessment for mobile technology in business was provided. In addition, the purpose and benefits of mobile commerce to insurers and customers was provided. Finally, the limitations and obstacles to mobile commerce were also discussed.

Chapter 4 gave a detailed description of the research approach, research types and research strategy as well as the research design followed in the treatise. A justification of the choice of research approach was also provided. Lastly a detailed description of the research quality standards was provided.

Chapter 5 presented the major findings and analysis resulting from the empirical data.

Chapter 6 provided a synopsis of the findings and was followed by the conclusions of the study. The implications of the study for insurance management and further research were discussed. Lastly, recommendations were made based on the findings and conclusions. The structure of the treatise is illustrated in Figure 1.1.
FIGURE 1.1: OUTLINE OF THE TREATISE

CHAPTER 1: BACKGROUND AND PROBLEM STATEMENT

LITERATURE REVIEW

CHAPTER 2: OVERVIEW OF THE INSURANCE INDUSTRY AND ENABLING TECHNOLOGY

CHAPTER 3: THE CONCEPT AND TECHNOLOGIES OF MOBILE COMMERCE

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

CHAPTER 5: EMPIRICAL DATA PRESENTATION AND ANALYSIS OF FINDINGS

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Source: Researchers Own Construction
1.12 CHAPTER SUMMARY

The main aim of this chapter was to introduce the area in which this treatise is conducted, from the general view to the specific problem. The chapter started with a brief introductory background covering the scope of the treatise. In addition the problem statement, research objectives and questions were formulated. This was followed by definition of key concepts; key assumptions; significance of the research; research methodology; and structure of the treatise. The next chapter covers the first part of the literature review relevant to this study.
Chapter one discussed the importance of the research, the main problem and sub-problems as well as the broad outline of the research. The current chapter will provide an overview of the insurance industry, particularly the life insurance market. The life insurance value chain and business process will also be discussed. A discussion of the internet and electronic commerce, insurance premiums and electronic business environment and a comparison of the pre and post internet era in insurance will also be provided. The chapter continues with a discussion of the impact of electronic commerce on insurance. Finally an encapsulation of the chapter will be provided at the end.

2.2 SUMMARY OF THE INSURANCE INDUSTRY IN SOUTH-AFRICA

South Africa has a highly developed and sophisticated economy with an advanced insurance culture. As a result, although it accounts for around 6.5 percent of the continent’s population, it produces some 75 percent of the non-life insurance premium as well as more than 80 percent of the life insurance premium on the continent. A number of South African insurers and brokers have local presence in many African countries. A well developed and efficient insurance industry is a basic condition for economic progress. The purpose of insurance is to provide financial stability to individuals, organisations and businesses. As a risk pooling and transfer mechanism, insurance allows the insured to alleviate pure risk. Examples of such risks are fires, flooding, damage to third party properties and personal accident and sickness (UNCTAD, 2002).

The insurance industry covers long and short term risk activities. It consists of three basic activities: Life insurance includes common life insurance and life reinsurance with or without a savings component. Non-life insurance comprises insurance and re-insurance of non-life insurance business. Examples include
accident, fire, health, property, motor, marine, aviation, transport, pecuniary loss and liability insurance. Pension funding includes the provision of retirement incomes but non-contributory schemes where the funding is largely derived from public sources. Reinsurance activities are included in one of the three sections, according to the kind of risk reinsured (e-business W@tch, 2005).

South Africa's Insurance business environment ratings (IBER) are 67.6 percent in relation to other countries in Africa and the Middle East. South Africa is an attractive insurance market for foreign insurers, with an established and well developed market. Within the region, South Africa stands out for the size of both the non-life and life segments with potential for growth in both segments. Regardless of political uncertainties, Government policies are likely to remain constant over the long-term, maintaining the credible regulatory framework which enhances South Africa's IBER. However, the IBER is held back by the instability of Gross Domestic Product (GDP) and the economic position, which is in part a function of the sensitivity of the South African economy to external factors.

In the next five years it is likely that non-life premiums will grow by 14 percent per annum in local currency terms, by 10 percent in US dollar terms and by 11 percent in euro terms. Life premiums are expected to increase by 8 percent per annum in local currency terms, by five percent in US dollar terms and by five percent in euro terms. The key driver for the growth in the non-life segment in 2007 to 2012 is the likely rise in nominal GDP from around US$268bn to US$372bn and an expected increase in non-life penetration from 3.04 percent of GDP to 3.5 percent (South Africa Insurance Report [SAIR], 2008).

The key driver of the modest growth anticipated in the life segment is the predicted rise in life density from US$503 per capita in 2007 to US$630 per capita in 2012. The competitive environment in the non-life sector is characterised by severe competition from large local players, but is, however, very open to participation by foreign groups, a fact to which South Africa's high score in this category of its IBER confirms. South Africa's insurance sector is well developed, due to the small part of a regulatory framework that is favourable to the development of the sector.
South Africa is Africa’s leading and most sophisticated long-term insurance market. Insurers function in an extremely competitive industry; an environment where the issue of corporate governance is highly profiled. The industry environment is also strongly characterised by legislative requirements. Current and upcoming legislation seeks increasingly to empower and care for the customer. The South African long-term insurance industry is dominated by a small number of large companies. During their 2003 and 2004 financial years, Old Mutual Plc, Sanlam Ltd, Liberty Group Ltd, Momentum Life Ltd and Metropolitan Life Ltd owned 88 percent of the total assets and comprised 95 percent of the embedded value of the listed long-term insurers (e-business W@tch, 2005). These five companies dominate the industry because they are considerably larger than the insurers comprising the remainder of the industry.

2.2.1 Overview of the life Insurance industry in South-Africa

Life Insurance is an agreement or contract between an insurance company and a policy holder. The insurance company assures the payment of a particular amount of money to the insured person in an event of sickness, accident or death. For this, the policyholder pays a specific amount of money at regular intervals, which is known as the premium. The designated beneficiary of the policy receives the associated benefit if an event occurs that is covered by the policy (Terrezas, 2008). As a financial sector, insurance is a major investor. The South African Life Insurance Industry is highly developed. There are currently about 70 life insurers, of which 13 write only linked investment business. Fifteen are niche players, mainly credit life or funeral insurance. The rest offers the full range of life insurance products.

South Africa has always been on the leading edge of life insurance with some of the first linked investment products having been written in the country. Similarly, critical illness insurance was launched in South Africa ahead than much of the rest of the world. As a result the original rating done for countries in Europe was based on the experiences of the South African market. In line with this well developed life insurance market is a high level of penetration for life insurance products (Ernst & Young, 2008: 3).
Life insurance premiums were around US$24 billion in 2004 representing close to 93 percent of Africa’s life insurance premium income. This premium equated to about 12 percent of gross domestic product (GDP) compared to 3.4 percent for Africa as a whole and 4.12 percent for America. However, the South African market is not immune from problems and the main problems currently facing the life insurance market are:

- Aids.
- High withdrawals from insurance policies.
- The fact that small companies cannot afford good quality administration systems.
- A significant negative perception of the industry recently, particularly concerning returns on retirement and other savings product.
- The lack of transparency of charges on life products (UNCTAD, 2007).

2.2.2 Current Trends in the South-African Life Insurance Market

The rate of premium growth in the South African insurance market considerably outstrips its counterparts in the rest of Africa. The South African industry accounts for 93 percent of Africa’s life premiums and more than half of non-life premiums. In the last couple of years the insurance industry has worked extensively on regaining consumer confidence after experiencing a period of negative publicity. This has proven true in recent statistics that reveal an increase in new business sales. The increase in sales emphasises the success of the industry in reforming itself and winning back the confidence of South African consumers (PWC, 2008: 12). A brief discussion of some current trends in the South African life insurance will follow.

2.2.2.1 Policy wording

Last year, several changes made to standard policy wording within the insurance industry could possibly affect the future of risk transfer strategies of organisations, as well as the insurance cover that they enjoy. Meanwhile, the life market is moving in the opposite direction. As the definitions become more technical and benefit structures become more complicated, standard policy wording with a prescribed set of benefits will be welcomed by clients. Risk
managers will have to read the fine print on every insurance contract, and it should be noted that the difference between one policy wording and another could have serious implications on the risk transfer strategies of an organisation (Terrezas, 2008).

The change to each insurer having their own commercial policy wording will complicate understanding for clients. This will place a heavy load on brokers, who will have the duty in terms of Financial Advisory and Intermediary Services (FAIS) to point out all the differences between the offerings of each insurer. Hence this will increase the risk for brokers as they can be held liable for damages to the client if the differences were not properly pointed out (Ernst & Young, 2008: 8). This implies that brokers will have to spend more time explaining differences, which will lead to increased cost of distribution and services.

2.2.2.2 Technology
Technology is contributing to a comprehensive review of promotion, product design distribution and post sale services. Significant new applications are forecast over the next three years in areas such as mobile distribution and services (PWC, 2008: 25). Examples of mobile services include electronic customer relationship management, mobile messaging services and field service automation. Other applications include improved data mining and modelling, straight through processing and processes that improve the allocation of risk capital and reserves.

2.2.2.3 Risk management
The three most threatening risks to earnings are credit risk, environmental risk and liquidity risk. There is a trend away from re-insurance, with more companies increasing their risk appetites. Policy holders and syndicates remains the greatest source of fraud in the life business (PWC, 2008: 14).

2.2.2.4 Regulatory pressure
The National Credit Act (NCA) has affected the business of insurers; hence management of most of the insurance firms holds mixed opinions on its impact. The proposals on contractual savings will redefine the role of the life industry in
the savings market. The belief among most insurance companies is that the new commission regulations will lead to better advice but will have a negative impact on intermediaries (PWC, 2008: 33-34).

2.2.2.5 Performance
According to Ernst and Young (2008: 4), the insurance index shows that life insurance confidence remains strong in the first quarter of 2008, despite slowing business fundamentals. This strong confidence was measured even with sharply slower investment income growth, and rising growth in policy surrenders. A report issued by Ernst & Young (2008: 5) shows that overall the insurance industry and its constituents have given the International Accounting Standards Board (IASB) strong support for the development of a high-quality global insurance standard.

At the end of the fourth quarter 2006 there were 70 long-term insurance companies registered with the Financial Services Board (FSB). The products offered by long-term insurance companies are:

- Life insurance.
- Assistance benefits, for example funeral cover.
- Sinking funds, which are investment products for corporate bodies.
- Fund business such as pension fund business, financial security business, and medical schemes. These are called fund policies and have specific rules associated with them.
- Home services, for example hospital policies where the policy pays out if the insured has to go to hospital under certain predefined circumstances such as car accident accidents.
- Disability policies.

The five largest long-term insurance companies accounted for 62.67 percent of the long-term insurance market. This was measured as a percentage of industry gross premiums. Figure 2.1 Illustrates the top five insurance company’s market share based on premiums in 2006.
2.2.3 Emerging opportunities and challenges for industry players

The insurance industry has been through changes. Significant movements towards deregulations in financial services, along with advances in telecommunications and computer technology are forcing major changes on the industry and making it much more competitive (SwissRe, 2004). Two of the most significant technological innovations that the industry has faced include the following.

- The growing importance of computer networks such as the Internet in the marketing, distribution and servicing of insurance products.
- The emergence of capital market alternatives to traditional reinsurance products (Garven, 1998).

Insurance policies are information products that can be easily digitised. Insurance firms are far developed as regards Internet presence such as online
offer of products and representation at online market places. In e-commerce, the industry is clearly among the top users, and in terms of communication with users it is active. Nevertheless, insurance policies are rarely bought online (Köhne, 2003). In 2005 a survey conducted by e-business w@atch regarding the level of positive experiences in e-business with insurance products showed that 14 percent were very satisfied, 73 percent fairly satisfied and the remaining 13 percent haven’t had enough experience to comment. Such results therefore give momentum to the industry to continue the transformation of information and communications technology (ICT) from the “old” to the “new” world, which is crucially important.

Consequently, the move to using new technology should allow sales personnel instant access and connection to corporate databases. The time and costs associated with personnel travelling to and from the company and the process of issuing documents will be reduced. Employees are therefore freed to spend more time with customers and give them better service. The opportunities and challenges facing the industry are presented below:

- By net premium, the South African long-term and short-term insurance market is expected to mature at the Compound Annual Growth Rate (CAGR) of nearly 12 percent and 17 percent respectively for the period 2007 - 2012.
- South African reinsurance market is expected to grow at a CAGR of 12 percent during 2007-2012 due to increasing natural disasters like earthquakes and floods.
- Material non-disclosure and misrepresentation to continue to be accountable for the highest number of fraud cases.
- As a result of the increase in the crime rates, thefts rates and high death rates, the total insurance market (Life & Non-life) is expected to exceed US$42 Billion in the year 2010 growing at the rate of more than 6.4 percent from the year 2006 onwards (SAIR, 2008).
2.3 LIFE INSURANCE VALUE CHAIN AND BUSINESS PROCESS

The business of insurance is pure risk. In insurance theory, risk is often defined as the variation between actual losses and expected losses. Insurers' premium rates are based on an assessment of average expected losses and damage. However, premiums collected based on such an average rate may not be sufficient to pay for all the damages in a year, if that year generates greater-than-average losses. Thus, insurers need to have additional funds in reserve. Such reserves are established when an insurer incorporates its business which is often addressed by government insurance regulation and supervision. More importantly, reserves may be replenished during the years when losses are less severe than the expected average (UNCTAD, 2002).

There are several primary steps that insurers take. First, it determines a premium rate for the risk it intends to insure against particular causes of damage (e.g. when insuring vehicles or homes against theft or fire). It also establishes adequate reserves to cover deviations from average, expected losses. Finally, the insurer determines whether any particular clients are likely to attract greater than average misfortune and decide how to adjust the rates it proposes to individual clients (SwissRe, 2004).

FIGURE 2.2: INSURANCE VALUE CHAIN

Source: SwissRe (2004)

The stages in the insurance value chain will now be synoptically reviewed:

2.3.1 Product development

Product development is the beginning of the value chain and covers the creation of insurance products to meet the needs of consumers. Deregulation, advances in enabling technology, and aggressive competition from new suppliers, including banks, are causing more and more traditional insurance companies to revise the way in which product development is undertaken (Axel, 1993). In a white paper by Camilion solutions, the contemporary competitive
climate demands that insurers meet and beat their competitors in the marketplace with innovative, timely products. To survive, insurers need to sustain a pace while reducing the costs associated with product development and management for the long term. Once a new opportunity has been identified, a product can now be made available within days. Product development is, however, resource intensive, expensive and extremely risky (Page, 1993).

There has therefore been a heightened need to find ways of reducing the risk and cost of product development. According to Clark & Wheelwright (1995), new product development is one of the most powerful but difficult activities in business. Business managers and marketing academics alike agree that an essential element of an organization’s long-term survival is success in new product development (Henry, Menasco & Tekada, 1989). The development of outstanding products not only opens new markets and attracts new customers, but also leverages existing assets and enlarges an organization’s capabilities.

2.3.2 Marketing and sales

The main idea of marketing is the matching of a company’s capabilities and the wants of customers to achieve the objectives of both parties. Hitt, Hoskisson & Ireland (2007: 86) also refer to marketing and sales as a set of activities completed to provide the means through which customers can purchase products. Customers can be induced to do so through advertising and promotional campaigns, appropriate distribution channels and a developed sales force.

An efficient sales and marketing system allows firms to efficiently track contacts, organize and manage all customers and information about prospects. Hence an efficient sales and marketing system allows firms to effectively manage sales opportunities and activities and provide better service to customers. Most firms are trying to make a leap towards customer marketing, partly because of tougher margin pressure. Target marketing offers the prospect of making more margins per customer by improving retention and cross-selling.
2.3.3 Administration

Administration consists of the performance or management of business operations and the implementing of major decisions. Administration can be defined as the process of organizing people and resources efficiently so as to direct activities toward common goals and objectives. This activity facilitates the insurer’s internal workflow and external communication (UNCTAD, 2007).

2.3.4 Asset management

Most firms consider innovation to be the introduction of new products and services to the market. The asset management activity contributes significantly to company growth, but not enough on its own. Innovation needs to be more broadly defined so that the assets and capabilities of the organization can be managed to create customer value at a corporate level, rather than in the context of the revenues, costs and returns associated with a particular product group (Knox, 2002).

2.3.5 Claims management

An insurance claim is an activity within an insurance company which focuses on the processing and the analysis of the damage declared by the customer. A claim is the actual application for benefits from the client provided by the insurance company after an assessment has been made. A high insurance credit rating is indicative of the fairness and promptness of claim settlements by an insurance firm and thus builds customer trust (SwissRe, 2004).

2.4 PRODUCT LIFE CYCLE FOR A LIFE INSURANCE PRODUCT

Product lifecycle management is a strategic business approach that looks at the life of a product from initial concept to abandonment. The life insurance product lifecycle can be summarized in seven phases: assess/validate, approve, build, launch, sell/service, maintain, and abandon. Illustrations of the stages are presented in Figure 2.3.
These stages in the product lifecycle are now briefly explored.

- **Assess/Validate**: The first stage in any insurance product’s lifecycle where product ideas are developed, modelled and assessed. During this stage an insurance actuary measures the risk exposure and determines the premium that needs to be charged to insure the risk. Using an enterprise product configuration at this stage enables product managers to reuse existing product components and store the definitions and data that make up the new product, for future reconfiguration.

- **Approve**: Several compliance laws control the sale of insurance products, therefore, once a product has been defined, it may be required to be submitted to insurance regulators for authorization. An enterprise product configuration will help administer this phase, along with a product development workflow to move the product in the course of the regulatory approval process and modify it as needed.

- **Build**: At this phase, the product modelled in the validation stage is fully configured and incorporated with other enterprise systems. Current
technology allows for enterprise systems to access product rules and data from the central product base in real-time. Using a product rule tester, product definitions and rules can be tested before deployment.

- **Launch**: At this stage the new product is made public, hence making the product data accessible by other systems. The product handbook and documentation are also created during this phase as part of the formation and definition of the product.

- **Sell/Service**: The product is then sold to businesses and consumers alike through all channels available. At present insurance products and services are sold through a range of channels such as direct selling through agents and brokers, banks, retail stores and the internet.

- **Maintain**: In due course, the product may need modification, including re-pricing, factor changes, alternative changes and so on. The product configuration component manages this phase and saves the information to the product base. Consequently a suitable product version can be provided in accordance with market dynamics.

- **Abandon**: The capability to rapidly put together new products allows insurers to sustain a fresh product portfolio. The key to the competitive strategy of insurance firms is to constantly ensure that attractive products are in place, and those products that are no longer appropriate or cost-effective are removed from the selling value chain (Camilion Solutions, 2007).

### 2.5 INTERNET AND ELECTRONIC COMMERCE

An e-service is the use of electronic networks and associated technologies via the internet to enable, improve, enhance, transform or invent a business process or system. Resulting task are completed, problems are solved to create value for current or potential customers (Sawhney & Zabin, 2001).
The employment of e-services not only allows customers to enjoy services through more channels in more flexible time frames, but also increases service provider effectiveness and efficiency, while satisfying customer needs.

The internet has developed from purely an information and communication medium into an important distribution channel. The internet allows companies to deliver high-quality, personalised information to a large audience in a way that was previously beyond belief. The above properties make the internet a powerful distribution channel.

While the focus in the early days of the internet was on selling products to consumers (business-to-consumer), the current emphasis is shifting toward commercial clients (business-to-business) (SwissRe, 2004).

According to the UNCTAD (2002) it is well known that e-commerce takes place essentially between enterprises, so that B2B amounts to around 95 percent of all e-commerce in most estimates. Laudon & Traver (2002) categorize seven characteristics of e-commerce namely:

- **Ubiquity**: The availability of Internet technology everywhere: at work, at home, on mobile devices and elsewhere.
- **Global reach**: The technology reaches across national boundaries, using the World Wide Web.
- **Universal standards**: There is one set of technology standards, namely internet standards.
- **Richness**: Video, audio and short messaging services are possible.
- **Interactivity**: The technology works by interacting with the users encouraging customer feedback and dialogue.
- **Information density**: There is a reduction of information costs and the vast improvement in quality using this technology.
- **Personalization/Customisation**: Segment of one marketing is made easy through this technology that allows personalized messages to be delivered to individuals as well as groups.
Conversely, m-commerce is often considered to be a flexible solution to many of the negative aspects of fixed-wired e-commerce. While mobile commerce refers to online activities similar to those mentioned in the e-commerce category, the underlying technology is different.

Mobile commerce is an extension of e-commerce in a wireless environment. The use of wireless technologies extends the nature and scope of traditional e-commerce by providing the additional aspects of mobility and portability. Moreover, m-commerce is limited to mobile telecommunications networks which are accessed through wireless handheld devices such as mobile phones, handheld computers and personal digital assistants (PDA’s).

Paavilainen (2002: XIV) explains that the phenomenal explosion of the internet and rising mobile phone penetration have paved way for advanced mobile applications that enables both consumers and corporations to access personalized services. Chapter three provides a detailed discussion of the concepts and technologies of mobile commerce.

Internet technologies not only have consequences for distribution, but influence a company’s entire business processes as well. The more the business process depends on the processing of information, the greater the potential for change. As a result, the notion of e-business is understood to encapsulate the use of information and communication technologies and specifically the internet to continuously optimise an organisation’s business processes (SwissRe, 2000).

Rising operation costs encourage service firms to consider options that allow customers to electronically perform part of the service themselves. The development of new information technologies and the rapid growth of the internet have created an infrastructure for firms to improve service operations and provide functional benefits for customers.

Many service providers and retailers have begun to use a wide range of information technologies to enable customers produce and consume services without direct contact with the firm or its employees.
E-services have created new marketplaces and new methods of exchange with numerous potential individual and business customers. From high to low-tech services, e-services may be implemented in widely divergent ways (Teo & Pian, 2004).

As internet innovations continue to be a critical component of customer-firm interactions, the use of e-services are expected to become key criteria for a firm’s competitive advantage and long-term business success.

2.5.1 Premium growth and electronic business environment

In 2000, insurance companies worldwide wrote $2,444 billion in direct premiums. In other words, the equivalent of 7.8 percent of global gross domestic product (GDP) was used to purchase insurance products. During the same year, insurance companies in developing countries generated premiums worth $209 billion representing 8.5 percent of global insurance premiums (UNCTAD 2002). A regional breakdown of insurance premiums in developing countries is presented in Figure 2.4.

In developing countries, the issue of disintermediation in the personal lines of business will become critical when access to and use of the Internet, credit cards and other means of online payment increase significantly. As in developed countries, in many developing countries clients do not hold the agency system in high regard.

When online insurance becomes a real alternative in developing countries, one can expect a decrease in agency-based delivery of insurance products (Sigma, 2001).
The issue with online insurance is whether the outcome will be an increase or a decrease in the capacity for developing countries to close the gaps that separate them from the industrialized world. The outcome will therefore depend to a considerable extent on factors that policy makers, business players and other stakeholders can influence. These factors include, for instance, the e-business environment or the promotion of a proactive attitude towards organizational change. In practical terms, policies must be designed, articulated in coherent e-strategies and implemented in partnership with all the relevant players. This is done to ensure that the new possibilities created can transform and exchange information. Consequently the value created can be used to improve the productivity of developing economies and their enterprises (Garven, 1998).

Source: Sigma (2001)
E-business opens up new ways of reducing costs. Simultaneously fierce competition will ensure that these benefits are passed on to the customer. In addition, the internet offers a number of possibilities for increasing the value creation for customers; not just in the area of sales, but also by means of increased transparency and improved services (SwissRe, 2000).

2.5.2 Electronic insurance

E-insurance can be broadly defined as the application of Internet and related information technologies (IT) in the distribution and services of insurance products. In a narrower sense, it can be defined as the provision of an insurance cover whereby an insurance policy is solicited, offered, negotiated and contracted online. While payment, policy delivery and claims processing may all be done online as well, technical and regulatory constraints in the country regarding e-commerce application in insurance may not allow it. However, insurance legislation worldwide is being continuously modified to accommodate online payment and policy delivery.

The anticipated efficiency effect of e-insurance is twofold. Firstly, e-insurance should reduce internal administration and management costs by automating business processes. This will permit real-time networking of company departments, and improve management information (UNCTAD, 2002).

Assuming cost savings are made, this would allow insurance firms to pass on a percentage of the savings to consumers. Consequently these firms can create a competitive advantage in the market. Alternatively, this cost savings can also increase the disposable income of consumers which allows them to increase their premiums or buy other products and services.

Currently in the insurance industry, IT is extensively used in areas such as: communication with intermediaries, policy processing, premium notices, market analysis, sales forecasts, accounting and other customer services.
2.5.3 Comparison of Pre and Post internet era in Insurance

Internet and e-commerce technologies have already had an impact and are continuously changing the structure of the insurance industry. The magnitude of the change can be best appreciated by comparing Figure 2.5 and Figure 2.6. As Figure 2.5 shows, the pre-Internet era in the insurance sector is largely linear. Individuals (personal lines) or businesses (commercial lines) transfer risk to insurers, sometimes directly, but more often through distribution channels such as brokers and agents. Intermediaries are responsible for processing more than 90 percent of all premiums collected. The application of information technology (IT) increases crossways as illustrated in the diagram and is most common in the reinsurance sector.

FIGURE 2.5: PRE-INTERNET ERA IN INSURANCE


Figure 2.6 illustrates an Internet-enabled insurance industry and market. The main attributes are that technology can be evenly distributed and information intermediation is no longer a necessity, but a preference. The linear travel of payments and risk information from client to re-insurer is absent. Buyers of
personal and commercial insurance and reinsurance can choose to pursue various paths to acquire price and policy information. Insurers and reinsurers have extended their reach through their online presence. Brokers and agents will also extend their reach if they had online presence.

FIGURE 2.6: INTERNET ENABLED INSURANCE


Using data standards can positively facilitate the increase in communication and data exchange. As illustrated in figure 2.6, the role of the standard-setting body ACORD, is to facilitate the development and implementation of data standards for the insurance and related financial services industries (UNCTAD, 2002). These standards improve efficiency, expand market reach and eliminate the cost associated with the process of contracting and managing insurance services. Another innovation is middleware, which provides connectivity between insurers’ information technology (IT) systems and the Internet economy.

Agents and brokers were an irreplaceable channel in the pre-Internet era in the insurance industry. Agents intermediated the sale of policies to individuals. Examples of such policies are personal life insurance, various savings and
investment schemes, home owners insurance and motor vehicle insurance. In addition these agents also intermediated insurance for small and medium sized business. Brokers intermediated insurance between large organizations and insurers, and also between insurers and reinsurers (SwissRe, 2000). The economic role for brokers was to enhance market efficiency by reducing information asymmetries between buyers and sellers caused by any of the following situations:

- The insurer is not fully informed of the scope of the demand of their products, or the insured is not well-informed about the options of insurance policies and prices available; or
- The insurer has not fully mastered the technical and economic details of the proposed risk, or the insured does not clearly understand the insurance policy's proposed terms and conditions.

2.5.4 Disintermediation by electronic commerce

The internet is gradually changing the way business is conducted as explained in the illustration of the pre and post era of insurance in Figure 2.5 and 2.6. The presence of the internet has broken down the value chain and is gradually removing middlemen such as agents and brokers. The process of removing these middlemen from the value chain is known as disintermediation. When the idea first occurred that firms could actually sell goods and services over the Internet, there was a general perception of the extinction of middlemen (Baatz, 1996).

The thinking that emerged at the time was that by making it technically possible for firms to transact directly with consumers, firms could eliminate distributors and agent's altogether. The savings as a result of the elimination could be passed on to consumers (Garven, 2000).

In synopsis, disintermediation can be described as the elimination of market intermediaries, enabling direct trade with buyers and consumers without agents. Further to that, an integrated Internet strategy is needed before re-structuring intermediaries’ in insurance networks and making them disintermediated. A dual strategy that includes the use of both online and offline sales can be used.
2.5.5 Impact of electronic commerce on life insurance

Changes to consumer lifestyles, improved living standards and the trend towards a diversification of product requirements means that demand for products that conform to individual tastes is increasing. The segment of one marketing has emerged as a result and this trend has encouraged the life insurance industry to turn its attention to the development of individualised services (Peppers & Rogers, 1993). Among these developments is the use of e-business.

The insurance industry complements e-business to integrate, filter, organize and analyse data collected from policy sales, appraisals and claims settlement (Luarn, Lin & Lo, 2003). Such activities further assist insurance agents to obtain data on demand for use in satisfying customer requirements and providing individualized services.

The internet enables new entrants to the market to avoid the costly and lengthy process of setting up conventional sales channels or networks. In addition to new businesses, new entrants from other segments also benefit from easier entrance to the insurance market. Those benefiting most are financial services and internet companies such as banks, online brokers and internet service providers (SwissRe, 2000). These companies take advantage of their online presence and brand name to include insurance products to their existing product mix.

The new type of internet insurers are able to utilize the full potential which e-business offers for increasing competence, without having to be concerned about business systems. Established insurers are hence challenged with growing competitive pressure.

E-business makes it possible to distribute information rapidly and in big volumes. E-business allows insurers to breakdown the traditional value chain and outsources certain links to consultants.
2.6 CHAPTER SUMMARY
This chapter provided the first part of the literature study and was divided into two main sections namely the insurance industry and technologies that enables the services of the industry. The first section provided discussions on the insurance industry particularly the life insurance market, current trends and emerging opportunities. The value chain and business process as well as the product lifecycle for life insurance products were also provided. The second section discussed the internet and electronic commerce, insurance premiums and electronic business environment. Also, a comparison of the pre and post internet era in insurance was given. The chapter continued with a discussion of the impact of electronic commerce on life insurance. In this chapter a number of theories were provided which form the basis for the conceptual framework in the next chapter.
CHAPTER THREE

THE CONCEPT AND TECHNOLOGIES OF MOBILE COMMERCE

3.1 INTRODUCTION
This chapter addresses mobile commerce, a new form of electronic commerce brought about by the rapid growth of wireless communications using wireless handheld devices. To begin, a general overview of mobile commerce will be provided followed by the fit and viability assessment of mobile technology in firms. The discussions continue with the value analysis of mobile technology highlighting on the areas of opportunities, also the technologies of mobile commerce will be discussed. The major varieties of mobile commerce will be provided. Furthermore, the benefits derived from mobile commerce will be highlighted. Finally, the limitations and obstacles as well as the potential effects of mobile commerce on insurance will be provided.

3.2 OVERVIEW OF MOBILE COMMERCE
The concept of electronic commerce (e-commerce) has been explained previously. Mobile commerce (m-commerce) is an extension of e-commerce in a wireless environment. The use of wireless technologies extends the nature and scope of traditional e-commerce by providing the additional aspects of mobility and portability.

According to Elliot and Phillips (2004: 3) m-commerce is the use of mobile handheld devices to communicate, inform, transact and entertain using text and data via connection to public and private networks. Similarly, Forrester (1999) defines m-commerce as the use of mobile handheld devices to communicate and interact via a high-speed connection to the Internet.

During the past decade two technological trends have developed: the extraordinary growth of the Internet and the tremendous development and increased sophistication of mobile technology (Barnes, 2002). The convergence of these two technologies has lead to the rise of numerous services delivered via mobile devices. Barwise & Strong (2002), suggest that the mobile channel is an extremely personal medium that consumers carry with them at all times.
Consequently, it has become part of the consumer’s social context and everyday life. Synoptically, mobile commerce can be defined as:

Any electronic transaction or information interaction conducted using a mobile device and mobile network to enhance the customer’s virtual and physical mobility. This leads to the transfer of real or perceived value in exchange for personalized, location based information, goods and services.

Mobile commerce is often considered to be a flexible solution to many of the negative aspects of fixed-wired e-commerce. While mobile commerce refers to online activities similar to those mentioned in the e-commerce category, the underlying technology is different. M-commerce is limited to mobile telecommunications networks which are accessed through wireless handheld devices such as mobile phones, hand held computers and personal digital assistants (PDA’s).

Nokia (2000) estimated that there will be a billion mobile phone subscribers worldwide by 2005. This was proved true by the end of 2006 where there were one billion cell phone accounts worldwide. Hence the rapid growth in mobile telephony provides a strong model for the adoption of uninterrupted mobile commerce. However, the rapid transition from fixed to mobile telephony will almost certainly be followed by a similar transition from fixed to mobile computing in the future. Some of the key factors that are driving the evolution and adoption of mobile computing applications is a consequence of:

- Greater reliance on computing and communication technologies.
- Increasing need for remote communication, computing and collaboration.
- Greater geographical mobility among corporate individuals.
- Societal shifts toward a more mobile workforce.
- Time constraints in making effective decisions within a narrow window of opportunity.
- Increasing availability of wireless connections at affordable rates.
- New and important requirements for mobile computing support such as intelligent mobile agents and mobile knowledge networking.
The convergence of wireless devices and the Internet is creating an important new channel to businesses. Across the insurance industry, the internet has become the next wave of change. The emerging impact of electronic commerce and subsequently mobile commerce on insurance is particularly important and an interesting area to study. Mobile commerce will thus enable firms to:

- Expand their markets,
- Improve their services and
- Reduce their costs.

3.3 MOBILE TECHNOLOGY IN BUSINESS: FIT AND VIABILITY ASSESSMENT

Liang and Wei (2004) propose a fit-viability model (FVM) that combines the theory of task and technology fit with the general notion of organizational viability of information technology (IT). A two-dimensional matrix that includes fit and viability will be used to assess the likelihood of successful applications. This conceptual model provides a useful guide for further explanation and evaluation of a general framework for successful technology adoption in businesses (Liang et al., 2007). For measuring whether a technology is properly used, Tjan (2001) proposes the use of two dimensions in evaluation of internet initiatives. One is fit and the other is viability.

Fit measures the extent to which new network applications are consistent with the core competence, structure, value and culture of the organization. Viability, on the other hand, measures the extent of the value-added potential of new network applications, requirements of human resource, capital needs and so on. Liang & Wei (2004) provide a fit-viability framework that combines the theory of task and technology fit with the general view of organizational impact of IT. Applying the framework created by Liang & Wei (2004), viability measures the extent to which the organizational environment is ready for the application. Readiness includes areas such as economic costs and benefits (see Figure 3.1), user readiness, and the maturity of the firm's infrastructure to support mobile technology. Fit will measure the extent to which the capabilities of mobile technology meet the requirement of task, examples being location-sensitivity and the time-critical needs of a particular service.
3.3.1 Firms task and technology fit

The theoretical foundation for the fit dimension of the model is the task technology fit (TTF) perspective. The postulation is that a better fit between technological characteristics, task requirements and individual abilities will lead to better performance (Goodhue & Thompson, 1995). Liang et al (2007) explain that in the fit viability model (FVM) the construct is modified to use a more objective assessment of the match between task and technology with no consideration of individual abilities. That is, fit only considers the nature of technology and the requirements of task itself. Most often the individual factors are considered to be part of the organizational viability.

When the FVM is applied to mobile technology, mobility and reachability are considered as two salient features for assessing the fit. This is evident from Figure 3.1. Junglas & Watson (2003) proposes that mobile technology applies to a task associated with time, location and identity dependent characteristics. If the requirements of task coincide with these features, its fit with mobile technology would be high. Therefore, the fit of the fit viability model (FVM) is determined by the need for employees to access data in the database when on the move to different locations and the time in performing those tasks is important.
3.3.2 Viability of technology in firms

Viability refers to the extent to which the infrastructure of the organization is ready for the application. The general economic feasibility, technical infrastructure and the social readiness of the organization needs to be considered. Moreover, many organizational factors have been identified to be critical to the success of IT implementation (Liang, 2002). The first aspect related to the readiness of an IT application is the economic feasibility, which includes two different aspects. One is to assess the cost benefit of the particular IT project to see whether the investment can bring in adequate financial returns. The other is to see whether IT can affect the transaction costs and hence lead to competitive advantages in the organization (Liang et al, 2007).

The cost-benefit of investment is obvious and many approaches such as assessing the net present value as an alternative to this analysis. From the transaction cost aspect, reducing transaction cost can increase customer's willingness to use a technology. Factors affecting transaction cost include asset specificity, uncertainty and frequency (Barnes, 2002). Assets specificity covers five facets, including human resource asset, location, physical asset, time and brand asset. Uncertainty will increase transaction costs due to high risks (Miller, 1992).

FIGURE 3.2: FIT - VIABILITY FRAMEWORK

<table>
<thead>
<tr>
<th>High Viability</th>
<th>Find Alternative Technology</th>
<th>Good Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Viability</td>
<td>Forget it</td>
<td>Organizational Restructuring</td>
</tr>
</tbody>
</table>

Source: Liang & Wei (2004)

With respect to organisational factors, Delone & Mclean (2003) point out that information systems (IS) success could be measured by factors such as benefit

39
and satisfaction. Consequently, user satisfaction and system usage are the two common criteria for evaluating the success of IS implementation. Information technology (IT) infrastructure comprises IT platform and diverse information service required for supporting a particular application. Examples of application support include information management, communication channels, the structure and control of the platform and different functional application systems.

Weill and Vitale (2002) point out that IT infrastructure is composed of IT components, human IT infrastructure, shared IT services and shared and standard applications. Hence an IT infrastructure of an organization has to include computing, information management and communication platforms. The fore mentioned provides the necessary foundation to support technological operation and enhance business development.

3.4 CUSTOMERS DECISION TO ADOPT MOBILE COMMERCE
Mobile commerce is expected to be the next big wave of business. A number of mobile commerce applications have been developed and are already in use, covering a wide range of business functions from advertising, to banking and insurance. The focus here will be on individual adoption of business to consumer (B2C) m-commerce. Prominent examples of B2C m-commerce include mobile financial services such as m-banking, m-insurance, and m-brokering.

Given the already high mobile phone penetration rate globally, the rapid growth of mobile commerce seems assured. The high penetration rate of mobile phones facilitates the exposure to mobile technology. Consumers are more likely to try, discuss or observe the usage of mobile technology for commerce. It is not clear, however, whether such exposure to mobile technology will affect mobile commerce adoption (Khalifa & Cheng, 2002). Nielsen (1993) explains that systems acceptability can result from its usefulness which also has two subcomponents, usability and utility as shown in Figure 3.3.
According to International Standardization Organization [ISO], (1998) usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. The ISO definition enhances Nielsen's definition that deals with user interfaces rather than application or service entities. The main usability challenges for mobile devices and services targeted at consumers are related to the wide variation of users, the restrictions of the devices and technical infrastructures available.

Traditionally, three theories, that is, the technology acceptance model, the theory of planned behaviour and the theory of innovation diffusion have been used to investigate individual information technology adoption in general. For the purpose of this study the technology acceptance model will be used. The Technology Acceptance Model (TAM) explains the determinants of user acceptance of a wide range of end-user computing technologies (Davis 1989; Venkatesh & Davis, 2000). TAM points out that perceived ease of use and perceived usefulness affect the intention to use. Recognizing this, Venkatesh & Davis (2000) have enhanced the model as illustrated in Figure 3.4 which provides a detailed account of the key forces underlying judgements of perceived usefulness. The Enhanced Technology Acceptance Model reflects
the impacts of three interrelated social forces: subjective norm, voluntariness and image.

FIGURE 3.4: ENHANCED TECHNOLOGY ACCEPTANCE MODEL

Source: Venkatesh & Davis (2000)

The enhanced TAM showed that both social influence processes (subjective norm, voluntariness and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and perceived ease of use) significantly influence user acceptance.

Mathieson, Peacock and Chin (2001) extended the Technology Acceptance Model by analysing the influence of perceived user resources. These authors explained that there may be many situations in which an individual wants to use an information system, but is prevented by lack of time, money, expertise and other constraints. Resource related attributes can be categorized as follows: user attributes, support from others, system attributes and general control related attributes that concern an individual’s overall beliefs about his/her control over system use. In their extended model, external variables affect
perceived resources that further affect perceived ease of use and behavioural intention to use (Mathieson et al, 2001).

3.5 VALUE ANALYSIS OF MOBILE TECHNOLOGY: AREAS OF OPPORTUNITIES
As mobile communications markets evolve, the nature of doing business from an e-commerce environment which is wired will transform to an m-commerce environment which is a wireless environment. Mobile device users are a large group of individuals, who cannot be ignored as a potential market, an estimated 1.3 billion in 2005. Consequently, m-commerce is gradually succeeding today’s PC-based, wired, e-commerce technology (Hansmann, Lothar, Nicklous, & Stober, 2001). Currently, some of the areas of mobile client/enterprise functionality are:

- Customer Relationship Management (CRM);
- Sales Force Automation (SFA);
- Field Service Automation (FSA); and
- Mobile Messaging Service (MMS).

The functions mentioned above will be briefly discussed. The use of electronic Customer Relationship Management (eCRM) is growing. Zetie (2002) contends that CRM should be considered as viewing customer relationships as an investment that will contribute to the enterprise’s success. According to Xu, Yen, Lin and Chou (2002) the battle for customers has never been more intense. Deregulation, diversification and globalization have stimulated a dramatic rise in competition and these unforgiving marketplace realities have forced companies to switch from product-centric approach to a customer-centric approach. Similarly, Rahman (2006) considers increased price competition, reduced regulation and reducing consumer loyalty as some reasons that has brought customer retention and customer relationship management (CRM). As a result, customer-centric approaches such as CRM have become an essential part of twenty-first century business.
Xu and Walton (2005) explain that the factors that motivate companies to move towards CRM technology are to:

- Improve customer satisfaction levels;
- Retain existing customers;
- Improve customer lifetime value;
- Provide strategic information from the CRM systems; and
- Attract new customers.

Among the above mentioned factors the first three factors mentioned appears more important than the last two factors. This shows that most managers accept the view that gaining a new customer is more costly than retaining an existing customer (Xu & Walton, 2005). The design and management of CRM is aimed at strengthening an enterprise’s competitive position by increasing customers’ loyalty.

The Internet offers a unique opportunity to the insurance sector to become much more active in the post sales phase of customer service for retention purposes. As a consequence of customer engagement the industry is becoming more competitive. The new generations of consumers are constantly using wireless technology especially on their cell phones. Most consumers’ today (2008) carry and use a cellular phone.

Sales executives are entering customer’s request wirelessly into the enterprise databases via a cellular phone/PDA. This is SFA. A considerable amount of time is normally invested by companies to develop applications that provide real-time information to their employees. For the mobile workforce it is increasingly important to immediately access information from a variety of corporate data repositories. These mobile workers need billing, contract, technical, and demographic data stored in enterprise databases and legacy systems. In order to generate customer bills, and reports, financial personnel need current information from their mobile workers.
Delayed data entry into corporate databases impedes an organization’s ability to access current information about customers, work schedules, billing history and other important data. One part of a real-time mobile solution is the mobile device itself. The other part is the application, which is especially designed for meeting the needs of mobile professionals. The application should be able to gather information, execute business logic and to access and synchronize with corporate data. If all of these are accomplished, the results of using a wireless mobile device are reduced administrative overhead leading to better service to customers, higher customer satisfaction, lower costs and increase profits (Aungst & Wilson, 2005).

Wireless technologies are bringing the insurance industry up to speed with the special needs of today's customer (Stresling, 2003). For example insurance agents can answer most of their customers’ questions in the field. These questions may be about policy coverage, in addition to looking up client phone numbers and claim data. Insurance agents can see all beneficiaries covered under a client’s life policy, basic information about the policy coverage and claims, including appointments and contact information (Stresling, 2003). All this is accomplished by connecting wirelessly to their enterprise databases. These are examples of FSA.

Using mobile messaging service (MMS) is beneficial for key employees, for example executives can be contacted anywhere and at anytime to give their input to those decisions that will immediately impact on the organization. Many executives carry wireless devices that are MMS enabled for the purpose of timely decisions while they are away from their desk. These mobile devices save time and money for busy business executives.

### 3.5.1 Application of mobile commerce to insurance: Mobile Insurance

The lifestyle and business applications of mobile telecommunications and pervasive computing are limitless. Such technology holds particular appeal for organisations with mobile workforces. For example workers who operate away from the offices much of the time, but who need up-to-date information in order to deliver an effective service will find a mobile-based system extremely useful.
Specifically, business professionals such as agents, insurance assessors and sales executives can be enabled to carry out their responsibility more effectively using wireless technologies and mobile devices. This gives rise to the mobile professional who uses mobile computing technology in different ways to meet the specific objectives of their work (Elliot & Phillips, 2004: 26).

In the insurance context, the main application for m-insurance that is insurance using m-commerce methods will mainly be in enhancing the performance of the field personnel, office personnel and the firm as a whole. Wireless devices will enable field staffers to access data resources that will enhance distribution, improve cross-selling, and appreciably speed up loss assessment, claims submissions and reimbursements. Attitudes to m-insurance vary in line with the general acceptance level of m-commerce technology as discussed earlier. A fully developed mobile system can help insurance companies make significant progress. Such examples include agents using mobile devices to access their company’s intranet to source quotes for clients and also for e-mail communication while in the field. The purpose of m-insurance is not necessarily related to a sales oriented mobile business strategy. The objective is to increase efficiency and enhance the organizations ability in all stages of post sale activities (UNCTAD, 2002).

3.5.2 New value creation for insurers

New information and communication technologies are making it easier for insurers to break up the value chain. Individual functions such as underwriting, policy administration, claims administration and risk management can be optimised within the business division. On the other hand these activities can be outsourced to a rapidly growing number of specialized external providers.

Claims management, underwriting and some parts of risk management are particularly suitable for outsourcing to specialized providers (SwissRe, 2000). Using mobile commerce in the insurance industry is not just restricted to distribution, but also has a basic effect on other service areas. The integration of all business processes in a unified information flow significantly reduces the cost of gathering and analysing information.
Since the efficient processing of information is a key factor for insurers in the value creation process, the use of new information and communication technologies enables them to revamp and rationalize key links in the value chain (UNCTAD, 2002). Figure 3.5 illustrates the value chain of a typical insurer and the opportunities offered by the use of mobile commerce. Traditional life insurers perform almost all the stages of the value creation process themselves. The bottom half of the figure provides a list of specialized providers that handle individual functions in the disintegrated business model. This will allow insurers to concentrate on those links in the value chain where they have a comparative advantage.

**FIGURE 3.5: INSURANCE VALUE CHAIN AND MOBILE COMMERCE OPPORTUNITIES**

<table>
<thead>
<tr>
<th>Traditional value chain</th>
<th>E-commerce affects these areas through:</th>
<th>Examples for potential specialist providers</th>
</tr>
</thead>
</table>
| Product development/rating | • Data availability and analysis  
   • Standardization  
   • New risks | Financial service providers |
| Marketing & sales | • New marketing opportunities  
   • Disintermediation | IT companies  
   Banks |
| Administration | • Automation  
   • Standardization | Financial service providers  
   Repair companies |
| Asset management | • Better information | Funds  
   Call centers |
| Claims management | • Automation  
   • Proximity to the customer  
   • Additional service | Professional claims managers |

Source: SwissRe (2000)

During the pre-internet era of insurance illustrated in Figure 2.5, the value creation of insurers was focused on aspects of distribution, administration and claims settlement. Due to the presence of the internet and mobile technology there are many routine tasks that could be automated through the efficient use of information and communication technologies.
3.6 TECHNOLOGIES OF MOBILE COMMERCE

Communication and services through wireless telecommunication networks that interface with mobile devices are becoming increasingly popular on a global scale. Wireless communications are enabled by the convergence of two technologies – the internet and wireless technologies such as mobile phones and personal digital assistants (Coyle, 2001). This implies that the rapid development of the internet and mobile technologies may lead to the growth of m-commerce. Some of the technologies that facilitate m-commerce will be briefly explored.

Electronic Data Interchange (EDI)

EDI is the electronic transfer of standardised business transaction between sending and receiving computers of companies via a private network. Both sides need to have the same application software and the data exchanged is usually in an extremely accurate format (Tassabehji, 2003: 4). For example in the financial, retail, and automotive industries EDI is used to integrate information across larger parts of the organisation’s value chain. This function enables the various firms to share information with partners and other stakeholders.

Electronic mail

Electronic mail or e-mail as is commonly known is the exchange of electronic text messages. Currently e-mails are vastly used by individuals and organisations and represent a significant share of internet traffic.

Some of the advantages of e-mail over physical mail include speed of transmission, possibly multiple recipients of the same message, further processing as well as indexing and archiving (Enders & Jelassi, 2005: 602). Furthermore, attachments to an e-mail message could include any information type, from images to sound and video.
Electronic Funds Transfer (EFT)

Electronic funds transfer refers to the computer-based systems used to perform financial transactions electronically. EFT provides a low cost option for payments and collections of cash via an electronic medium. EFT is safe, secure, efficient and less expensive than paper check payments and collections. Life insurance companies currently use EFT to collect and renew premiums with their clients.

Electronic facsimile

Electronic facsimile is an Internet-based document transmission and receiving system that also accommodates conventional fax machines. Electronic facsimile uses store and forwarding rather than real-time facsimile transmission. The method avoids keeping the originating fax machine and the telephone line from being unnecessarily occupied. Such delays are associated with the use of the Internet (Tassabehji, 2003: 6). For example life insurers can use such systems to service clients at anytime. Clients request information through a computerized interactive telephone system through their mobile device keypad. The system automatically generates a fax containing the requested information and sends it to the clients fax machine or electronic facsimile.

Smart cards and biometrics

Smart cards are plastic cards with an embedded small chip. They are used in various ways and provide a higher level of security than password based systems. Using smart card based log-in via computer systems provides additional security because a potential abuser will have to get hold of the smart card. A common application is internet banking. The use of biological data for IT security is referred to as biometrics which currently provides the highest level of security. Such biological data can be obtained for instance from finger prints and hand characteristics, voice, eyes or entire facial patterns (Enders & Jelassi, 2005: 608).

Smart cards and biometrics can be combined by putting biometric data on the chip based cards. Mennecke & Strader (2002) explain that users will have their
smart cards containing their biometric data which can be matched at the point of authentication with the biometric data measured on the spot. However, a concern in using biometrics is data privacy. One way to alleviate this problem is to encrypt the data captured and immediately deleting the original (Newell & Newell-Lemon, 2001).

**Instant messaging**

Instant Messaging (IM) is a form of electronic communication that can be used on PCs or mobile devices such as wireless PDAs. Effectively, IM is a popular alternative to E-mail and is particularly useful in maintaining instant communication networks between collaborating peers and employees. IM technology enables voice, text and real time response communication (Elliot & Phillips, 2004: 458). The various categories of IM include Short Messaging Services (SMS), Enhanced Messaging Service (EMS) and Multimedia Messaging Service (MMS). SMS allows the sending of peer to peer text messages as a push message.

In addition to mobile phones or handheld devices, SMS can also be sent from websites with an SMS gateway. EMS is also very similar to SMS, but allows richer services for example formatted text in order to produce italics or bold letters. MMS on the other hand offers capabilities beyond those of SMS and EMS. It enables transmitting multimedia data like images, photos, video-clips or mobile video conferencing (Newell & Newell-Lemon, 2001).

**Cell broadcast**

Cell broadcast (CB) is mostly used for various push services and mobile marketing. The difference between CB and SMS is the number of connections set up in parallel. Whereas SMS is a pure one to one service, CB provides the possibility for one to many broadcasting; mass distribution of mobile messages (Enders & Jelassi, 2005: 619).
Micro browsers

A micro-browser is a piece of software which enables internet access from a mobile phone. It may be installed on a SIM card with phones using SIM application toolkit. However, most new phones are already equipped with Wireless Application Protocol (WAP) micro-browsers and therefore WAP softwares residing on a sim card is becoming less popular. Another option is to integrate the micro-browser as part of the core operating system of a mobile device (Paavilainen, 2002: 18).

Wireless Application Protocol (WAP)

In order for mobile commerce to be practical and useful it must be supported by robust and reliable wireless connectivity within computer based systems infrastructures. Reliable access to mobile systems is critical to the implementation and support of mobile commerce. The characteristics of connectivity within the wireless domain are different from those that impact on fixed wire computer systems (Elliot & Phillips, 2004: 177).

For example display screens are necessarily small in order to maintain portability. Keyboards are rare in relation to mobile technology devices; memory is limited and, significantly, telecommunications bandwidths are limited and vary within the mobile domain. Therefore, applications and data have to adapt to each device and not vice versa.

WAP architecture layers

The basic WAP architecture is logically layered. The WAP architecture standards encompass network protocols, security and software applications environment (Newell & Newell-Lemon, 2001). The layering provides simplification in the network environment by separating the functions and actions into layers and assigning protocols to perform each layers task and activities.

The protocol layering allows task to be more logically grouped (Elliot & Phillips, 2004: 123). In synopsis during m-commerce all the WAP protocol acting
together provides the methods and processes for communicating and delivering services and applications within networked wireless environment. The functions of some WAP protocol layers will be reviewed.

The Wireless Application Environment (WAE) is the top layer of the WAP protocol. The WAE consist of the software applications for presenting information and running scripts. This layer interacts directly with the end user; examples include mobile phone and PDA users (Mennecke & Strader, 2002).

At this top layer the end-user can access an internet Uniform Resource Location (URL) and use mini-screen web browsers on portable devices. According to May (2001) the main function of the WAE layer is to provide an environment that allows various service providers and multiple operators to develop applications and services that can be rendered on a multiplicity of WAP enabled mobile devices and portable technologies.

The Wireless Session Protocol (WSP) is the layer that controls the server to client and client to server connections. This protocol layer further provides for the basic networking protocols used to support internet browsing (Elliot & Phillips, 2004: 124). The WSP layer also regulates the suspension and resumption of online sessions. For example client pull or server push for information sending and receipt over a network.

The Wireless Transaction Protocol (WTP) layer deals with the request and response aspects of the WAP protocol. The WTP layer is designed to be particularly efficient and well suited for dealing with devices with very little processing power and low bandwidths like mobile phones and PDAs. The WSP also supports the wireless exchange of information between devices and applications (May, 2001).

The Wireless Transport Layer Security (WTLS) layer provides the WAP security protocols. It ensures levels of privacy and user authentication. The WTLS protocol supports WAP over low bandwidth channels examples are those from mobile devices (Elliot & Phillips, 2004: 124). The WTLS protocol is also of
significant importance in securing confidence in M-commerce by users of WAP enabled mobile devices.

Mennecke and Strader (2002) explain that the aim of WTLS is to provide secured communication between devices and computer systems. High levels of security are essential to support various m-commerce applications such as transferring financial data and exchange of electronic business cards.

The Wireless Datagram Protocol (WDP) layer is a transport layer protocol that offers a consistent service to the rest of the WAP layers. This layer deals with internet protocol (IP) network traffic and supports communication between the bearer services below the WDP layer and those above it (Elliot & Phillips, 2004: 126).

Bluetooth, wireless fidelity and ultra-wide band

Bluetooth is a short range wireless standard for the interconnection of various devices, such as computers, mobile phones and PDAs. The maximum range is about ten metres. Connection requires a transceiver chip on each device and transactions can be made from peer to peer or to multipoint. The technology enables sending, receiving and replicating data and voice.

Bluetooth is important when it comes to the convergence of electronic and mobile technology. From a security point of view bluetooth provides encryption and verification (Enders & Jelassi, 2005: 618). The Wireless Fidelity (Wi-Fi) compared to bluetooth has a high frequency and a much faster data transmission speed. Yet the trade-off is the required power supply.

In contrast to bluetooth which is the low power option, Wi-Fi cannot be used for battery powered devices. Ultra Wide Band (UWB) on the other offers the combined benefits of bluetooth and Wi-Fi, that is providing high data transmission speed at low power. Furthermore, given its frequency hops in the range of nano-seconds, UWB is more secure than other technologies (Enders & Jelassi, 2005: 618).
3.7 MAJOR VARIETIES OF MOBILE COMMERCE

The surge in mobile handset use throughout the world, the rapid growth of the Internet and the proliferation of personal data assistants are expanding the electronic commerce market in which mobile commerce is expected to flourish (UNCTAD, 2002). M-commerce represents the extension of e-commerce in a mobile environment. E-commerce can be broadly classified into four categories:

- Business to business (B2B),
- Business to consumer (B2C),
- Consumer to business (C2B),
- Consumer to consumer (C2C).

The main types of e-commerce mentioned above still remain unchanged in a mobile environment. M-commerce can be considered to be a flexible solution to many of the negative aspects of the fixed wired e-commerce. The main types of e-commerce will be briefly discussed.

3.7.1 Business to Business

Business to business applications is any business transactions between corporations (School of International Business [SIB], 2003: XV). It is often described as inter-company trading (May, 2000: 83). The two businesses pass information electronically to each other. B2B generally involves large companies transferring all their business purchasing and sales to the Web. The use of extranets facilitates this. A classic example is Cisco systems, the supplier of Internet hardware, where both buyers and suppliers trade online.

Like business to consumer (B2C) applications, online practices allow for cheaper, easier and better quality information flow between businesses (Hayes, 2002). As well as reducing costs, increasing efficiency and improving relationships. This includes for example insurance companies trading with banks or even insurance companies dealing with other insurers. In the B2B segment, e-business solutions providing support for policy administration and claims settlement are likely to dominate (SwissRe, 2000).
According to (May, 2000: 83) most B2B is repeat transactions therefore the emphasis is on maintaining a good relationship with customers. An illustration of the growth in B2B e-commerce is given in Figure 3.6.

FIGURE 3.6: GROWTH OF B2B E-COMMERCE

![Growth of B2B E-commerce](image)

Source: Laudon & Traver (2004)

One area of B2B e-commerce is real time collaboration. This area of e-commerce promotes partner inclusion and allows companies to study and assist in the organisational operations of other firms online (May, 2000: 139). The Internet allows individual businesses to combine their practices and operations without having to physically relocate. This means increased efficiency and productivity at cheaper costs. For example a company in South-Africa could theoretically form a partnership with a company in Ghana without either company relocating their operations. As e-commerce continues to expand, physical boundaries will increasingly become irrelevant to B2B corporations.

### 3.7.2 Business to Consumer

Business to consumer applications is any business transactions conducted directly between a company and their customers (SIB, 2003: XV). B2C application is a two way function usually done through the Internet. The evolution from Bricks and Mortar to the Internet has allowed many businesses
to reduce costs, increase efficiency, improve customer relationships and enter new niche markets.

Kalakota and Whinston (1997: 2) believe that online B2C applications will eventually replace the traditional business model altogether. This type of e-business involves disintermediation that has traditionally played such an integral role in business communications (Rowley, 2002: 7). Some benefits of removing these middlemen are that business transactions will become competitive and more efficient.

E-business encourages equal opportunity for all B2C companies, as there are fewer barriers to marketplace entry (Rowley, 2002: 7). With the advent of globalisation consumers are increasingly demanding service convenience and quality but at lower prices (Kalakota & Whinston, 1997: 21). As a result B2C companies have become very consumer oriented (May, 2000: 83). They provide quality goods and services to consumers at competitive prices. Well recognized B2C examples include retail activities such as the virtual bookshop Amazon.com. Other examples of successful sites such as e-Trade offer free advice to consumers in the hope that they will retain their custom and loyalty (May, 2000: 117-118). An illustration of the growth of B2C is given in Figure 3.7

FIGURE 3.7: GROWTH OF B2C E-COMMERCE

Source: Laudon & Traver (2004)
3.7.3 Consumer to Business

Consumer to business applications is any business transactions whereby customers approach businesses. C2B e-commerce is an emerging area in business where the consumer requests a specific service from the business. For example, consumers can request for specific insurance products to meet their personal needs.

3.7.4 Consumer to Consumer

Consumer to consumer applications is any transactions between and amongst consumers (SIB, 2003: XV) and also make it possible for customers to interact with other customers. They are often described as Peer-to-Peer (SIB, 2003: XV). Whereas once business activities were confined to transactions between corporations and their consumers, the presence of the Internet has broadened this definition to include individual transactions between consumers. As the new economy encourages a more individualistic and consumer-driven approach to business, the explosion of C2C applications is imminent.

The most famous and successful example of a C2C application is e-Bay. Ebay.com is an online auctioning site that facilitates the trade of privately owned items between individuals (May, 2000: 109). The consumer lists items for sale on the e-bay site. Other consumers access the site and place bids on the items listed. E-bay then provides a connection between the seller and buyer to complete the transaction. E-bay then charges a transaction fee. C2C applications are a growing area of e-commerce. As online business expands, peer-to-peer transactions will continue to grow in popularity and the industry will become highly profitable.

3.8 BENEFITS DERIVED FROM MOBILE COMMERCE

The new m-commerce capabilities bring significant efficiency improvements in distribution, administration and claims settlement. Additional savings potential comes from using m-commerce applications to automate business processes consequently leading to reductions in administration and claims settlement costs. Modern information technologies also bring cost savings for claims payments. For example, better data analysis may improve risk selection, while
the detection of insurance fraud and tighter control by partner companies can help to reduce claims costs (SwissRe, 2000).

In life insurance, claims costs are much less than in non-life insurance, because of the high savings component. For traditional insurers, the need to adapt to the new m-commerce opportunities not only entails direct cost, in the form of substantial investments in the new information and communication technologies. In addition the indirect costs of having to change their existing business models. The internet provides insurers with substantial cost advantage which are largely driven by reduced sales costs, lower customer service costs, and cheaper information-gathering about the customer. Mobile commerce will thus help in the minimal use of the agency system to more direct distribution systems which bring significant savings. The potential benefits of m-commerce for businesses and consumers’ are summarized in Table 3.1.

TABLE 3.1: POTENTIAL BENEFITS OF MOBILE COMMERCE FOR BUSINESSES AND CONSUMERS

<table>
<thead>
<tr>
<th>BENEFITS TO BUSINESS</th>
<th>BENEFITS TO CONSUMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand access to trading partners and market reach</td>
<td>Expand access to trading partners and support services</td>
</tr>
<tr>
<td>Customer contact and service enhancement</td>
<td>Enhance supplier relationship with both contact and service</td>
</tr>
<tr>
<td>Reduce cost of sales, technical documentation and customer service cost</td>
<td>Lower purchasing prices through improved price transparency and comparison</td>
</tr>
<tr>
<td>Competitive advantages through improved efficiencies and process planning</td>
<td>Improve efficiencies and transaction flow, visibility and control</td>
</tr>
</tbody>
</table>

Source: Adapted from Moodley (2003)

In the short-term, entry into m-commerce may offer a competitive advantage over late entrant competitors. The market for m-commerce is growing, due to more consumers and businesses gaining Internet access and transaction processing technologies improving. Companies that establish an operation today, still in the early stages of Internet based m-commerce, will be able to create an early entrant advantage and be better prepared to capitalize on
emerging technologies when m-commerce markets flourishes in the next few years.

3.9 LIMITATIONS AND OBSTACLES TO MOBILE COMMERCE

Challenges in implementing m-commerce in the life insurance industry, many of which overlap those faced with its e-commerce counterpart; include issues relating to both the system and its users. Costs and lack of control over system quality have to be considered, as does user resistance to the system explained previously in customer’s decision to adopt m-commerce. Technical restrictions of mobile devices and wireless communication, business concerns and legal constraints complicate the practical use of mobile commerce (Coyle, 2001). Importantly, many of these issues will impact, not only on consumers, but also on merchants that are using m-commerce as another mechanism to broaden their reach to customers and support transactions.

The obstacles to mobile commerce, such as the cost of mobile devices, mobile internet services and difficulty in accessing efficient and fast cellular telecommunications networks are diminishing each year (Elliot & Phillips, 2004: 11). Thus mobile commerce is gradually becoming attractive to both business organizations and individuals. A more relevant issue for user protection and digital content is how consumers will be protected. Particularly, how vulnerable consumers like children, will be protected from a plethora of content and the offer of goods and services that may not be suitable. The main obstacles that are continuously challenging mobile commerce applications will be discussed.

3.9.1 Application Challenges

Mobile Devices Limitations

Current wireless devices include mobile phones, personal digital assistants, laptops and vehicle mounted interfaces. Whereas mobile terminals demonstrate a greater extent of mobility and flexibility, they can be inferior in several respects when compared to personal computers. The screen is small and the display resolution is low. The small and multifunction keypad complicates user input.
Because of the need to be physically small and light, these input and output mechanisms impede the development of user friendly interfaces and graphical applications for mobile devices. Mobile handsets are also limited to computational power, memory and disk capacity, battery life and internet browsing abilities. These drawbacks in mobile devices do not support complex applications and transactions and consequently limit usage of mobile commerce.

**Strategy Changes**

To stay competitive and realise sustainable productivity benefits from mobile commerce, organisations will need to redesign their structures to accommodate the changes associated with m-commerce. Firms will also have to make fundamental changes in organisational behaviour, develop new business models and eliminate some of the inefficiencies inherent in the old organizational structures (Lim & Siau, 2003: 11). For example implementing mobile commerce is about reengineering the way firms do their business. It requires rethinking how the operational functions of the business will be performed to satisfy the needs of consumers.

**Investment Risk**

A major problem faced by mobile commerce is the investments required to implement and operate it. Engineering organizational and system changes to reposition the organization strategically is complicated as well as expensive. For example a life insurance company has to build a mobile infrastructure in order to better manage its sales and post sales activities.

The mobile technology itself does not guarantee the true benefits of mobile commerce. Expertise in fields other than information technology is a prerequisite for successful applications of mobile commerce. The question becomes, how can life insurance companies obtain a payoff from their investments in mobile commerce?
3.9.2 Network Obstacles

Incompatible Networks

Multiple, complex and competing protocols exist in cellular network standards. For example, global system for mobile communication (GSM) is the prevailing mobile standard in Africa, Europe and most of the Asia Pacific region. Time division multiple access (TDMA) and code division multiple access (CDMA) are widely used in the United States. These different standards have resulted in the global incompatibility of cellular handsets. The network incompatibilities pose problems for organisations to communicate and cooperate with their distributors, agents, brokers and customers across the globe.

Security

Securing mobile commerce activities may be more difficult than protecting wired transactions. Constrained bandwidth and computing power, memory limitations, battery life and various network configurations will all impact on the ability to provide adequate security for users without compromising the ease of use and speed (Thanh, 2000). Although most wireless data currently provide adequate levels of encryption and security, the technology does not ensure transmission security in the network infrastructure (Lim & Siau, 2003: 11). Data can also be lost due to mobile terminal malfunctions.

In addition, mobile terminals are more prone to theft and consequential misuse. Mobile terminals poses a great threat particularly since they may contain passwords and personal identification numbers (PIN's) used to provide the authentication and data integrity required for verifying financial transactions. For example in every transaction each party involved needs to be able to authenticate its counterpart to ensure that messages are not tempered with. Therefore secured transactions will help keep the communication content confidential and to ensure that the received messages come from the correct senders. Due to the inherent vulnerability of the mobile environment, users of mobile commerce are more concerned with security issues involved with mobile transactions. Mobile commerce users need the assurance that their financial
information is secured and that wireless transactions are safe (Gosh & Swaminatha, 2001).

Synoptically, the mobility enjoyed by mobile commerce also raises many more challenging security tasks. The mass adoption of mobile commerce will not be realised until users begin to trust mobile commerce transactions (Siau & Shen, 2003). Finally, Security is vital if m-commerce is to become an electronic wallet for micro-payments for customers worldwide (UNCTAD, 2002).

3.9.3 Infrastructure Problems

Competing Web Languages

Mobile devices use a broad range of often incompatible standards, making the process of creating a successful m-commerce application a daunting task. Newer mobile device versions use different protocols as compared to older versions, hence creating a difficulty in synchronization (Lim & Siau, 2003: 13).

Seamless Integration

The integration between network operators and business is a key issue for mobile commerce. In addition, to conduct business via mobile devices, companies must be capable of managing and supporting a large base of mobile customers and employees (Barnett, Hodges & Wilshire, 2000).

The management and support function thus create a challenge to the traditional help desk and post sale services. Furthermore companies must deal with the logistics, procurement and asset management issues surrounding large numbers of devices and softwares.

3.9.4 Legal Concerns

Apart from its technical and business obstacles, the implementation of mobile commerce has legal concerns too. Legal issues concerning mobile commerce are similar to those facing e-commerce. Some of them are how to maintain privacy, how to deal with defamation, how to protect intellectual property and how to treat internet taxation (Deitel, Deitel & Steinbuhler, 2001).
3.10 POTENTIAL EFFECTS OF MOBILE COMMERCE ON INSURANCE

Adopting mobile technology may create two kinds of impacts on insurance operations. The first is to facilitate communication among employees, customers and intermediaries. Through the enhancement of communicating efficiency and information timeliness, mobile technology can increase organizational productivity and profitability.

The second is to re-vitalize business processes through changing data access patterns. Reachability and mobility are two main characteristics of m-commerce (Liang, 2002). For example, insurance agents can use mobile technology to provide timely services. Compared with traditional e-commerce, transactions are generally conducted through mobile devices.

M-commerce applications provide the potential with more freedom. This further allows organizations and users to perform various commerce-related tasks without the limitation of time and location, available anytime from anywhere. In addition, the economic value contributed from m-commerce illustrated in Figure 3.1 is more than that from e-commerce, such as product and service localization, personalization, ubiquity enhancement, instant connectivity and convenience (Forrester, 1999).

Life insurance and the other lines of insurance services are areas where m-commerce can play a major role. The emerging role of the impact of mobile technology and the internet affects all the major players in the electronic insurance marketplace. An illustration of the major stakeholders and interdependent relationships in the industry is shown in Figure 3.8.
All the players and stakeholders illustrated in figure 3.8 have a direct interest in the changing trends and advancement of the electronic marketplace. Change management thus becomes effective if the roles of the different stakeholders are addressed. Compared to online stock brokerage and online banking, the development of the Internet in the insurance industry has been somewhat cautious. Websites mainly serve to provide information about the company and its products. Many insurers especially in developing economies have not taken advantage of the opportunities created by m-commerce for making all business processes more efficient, beginning with online insurance sales.

The number of insurance companies that have embraced the technology is growing slowly. There are some factors which make the online selling of insurance products difficult. The complexity of some products, for example, tax efficient life insurance policies increases the consumer’s need for specific advice (SwissRe, 2000). Moreover, many consumers still view the Internet as an insecure medium. This prevents large transactions from being concluded via the Internet, and it discourages the transmission of confidential information,
both of which are essential aspects of insurance products. In the personal lines of insurance especially, regulatory hurdles make Internet distribution difficult due to various underwriting clauses.

In view of trends concerning the growth of m-commerce in the financial sector, it is interesting to consider what the impact has been and is likely to be for the life insurance industry in particular. Although other online financial services have already taken off quite vigorously, the insurance industry’s involvement with and commitment to m-commerce lags far behind competitors in the banking and brokerage industries (UNCTAD, 2007). Some major concerns for insurance companies regarding m-commerce applications include the following.

- Resistance to change.
- Threat of agent or broker disintermediation.
- Lack of technology or regulatory hindrances.
- Costs or impacts of moving off legacy systems.
- Lack of skilled information technology personnel.
- Lack of e-business strategy.
- Lack of enterprise technology architecture.

It is widely recognized that m-commerce will enable insurers to significantly lower costs and realize business process efficiencies. Furthermore, customer service and brand loyalty can also be improved, and thus enable insurers to better position themselves competitively. Conversely, the insurance industry’s sluggish Internet pace can also be attributed to industry concerns about unleashing price competition, and channel conflict with agents.

3.11 CHAPTER SUMMARY

The chapter began with a general overview of mobile commerce and a discussion of the fit and viability assessment of mobile technology in firms. Key concepts such as value analysis of mobile technology, technologies of mobile commerce, major varieties, benefits and limitations as well as potential effects of mobile commerce were also discussed. The literature shows clearly that
mobile commerce is a priority for the life insurance industry. The next chapter will provide a detailed discussion on the research design and methodology.
CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION
In Chapter three a discussion of the variables likely to influence how post sale activities can be improved in life insurance companies by the use of mobile commerce was provided. A review of the relevant theories and models for the purpose of this research was provided. Chapter four provides detailed discussions of the research design and methodology followed in the empirical study. An illustration of the research design and methodology framework is provided in Figure 4.1.

FIGURE 4.1: RESEARCH DESIGN AND METHODOLOGY FRAMEWORK.

4.2 OVERVIEW OF THE RESEARCH DESIGN
Different research problems lead to different research designs and methods. This in turn results in the collection of different types of data and different interpretations of those data. Furthermore, many kinds of data may be suitable only for a particular methodology. To some extent the data dictate the research method (Leedy & Ormrod, 2001: 90-91). A discussion of the various research designs and concepts and a justification of the appropriate choice for this research will be provided.
4.3 RESEARCH APPROACH
The research approach is generally classified as either quantitative or qualitative. The quantitative and qualitative methods refer to the method by which the data obtained from the research will be analysed and discussed. Both approaches have their merits and demerits hence neither one of the two can be justified to yield much better results than the other (Yin, 1994: 18). The appropriate method to use for a particular study depends on the research purpose and questions that need to be addressed. The different types of research approaches will be briefly explored.

4.3.1 Analysing Quantitative data
In general, quantitative research is used to answer questions about relationships among measured variables with the purpose of explaining, predicting and controlling phenomena (McDaniel & Gates, 2004: 66). Quantitative research seeks to quantify observations about human behaviour through numbers. The emphasis is on precise measurement, the testing of hypothesis based on a sample of observations, and a statistical analysis of the data. This approach is sometimes called the experimental, traditional or positivist approach. Three types of quantitative methods will be briefly explored.

- Experiments: True experiments are characterized by random assignment of subjects to experimental conditions and the use of experimental controls.
- Quasi-Experiments: Quasi-experimental studies share almost all the features of experimental designs except that they involve non-randomised assignment of subjects to experimental conditions.
- Surveys: Surveys include cross-sectional and longitudinal studies using questionnaires or interviews for data collection. The intent is to estimate the characteristics of a large population of interest based on a smaller sample from that population (Creswell, 1998).

4.3.2 Analysing Qualitative data
Qualitative research is typically used to answer questions about the complex nature of phenomena: most often, with the purpose of describing and
understanding the phenomena from the participant’s point of view or to observe their behaviour (Malhotra & Birks, 2006: 133). According to Mouton & Marais (1992: 155) qualitative research projects are those in which the procedures are not strictly formalised, while the scope is more likely to be under-defined but with a more philosophical mode.

Furthermore, Yin (1994) explains that qualitative methods are often related to case studies, where the aim is to receive detailed information and thereby obtain a deep understanding of the research problem. Qualitative research often seeks to explore why people act or think the way they do, and is most effective when open ended questionnaires with focus groups or in-depth interviews are used.

The qualitative approach is also referred to as interpretative, constructivist or post positivist approach. Table 4.1 summarises the distinguishing characteristics of some common qualitative designs.

**TABLE 4.1: DISTINGUISHING CHARACTERISTICS OF DIFFERENT QUALITATIVE DESIGNS**

<table>
<thead>
<tr>
<th>Design</th>
<th>Purpose</th>
<th>Focus</th>
<th>Methods of Data collection</th>
<th>Methods of Data Analysis</th>
</tr>
</thead>
</table>
| Case study   | To understand one person or situation. Perhaps a very small group in great depth | One case or few cases within its natural setting | • Observations  
• Interviews  
• Appropriate written document or audio visual material | • Categorization and interpretation of data in terms of common themes  
• Synthesis into an overall portrait of the case |
| Ethnography  | To understand how behaviours reflect the culture of a group              | A specific field site in which a group of people share a common culture | • Participant observation  
• Structured or Unstructured Interviews with informants  
• Artefact/document collection | • Identification of significant phenomena and underlying structures or beliefs  
• Organisation of data into a logical whole |
| Content Analysis | Identifying characteristic s of a body of material                      | Verbal/ visual behavioural comunication     | • Identification and possible sampling of the specific material to be | • Tabulating the frequency of characteristics.  
• Descriptive or |
Phenomenological study

Understand an experience from the participants' point of view

Particular phenomenon as it is typically lived and perceived by humans.

- Detailed unstructured interviews
- Purposeful sampling of 5-25 individuals

- Search for “meaning units” that reflects various aspects of the experience
- Integration of the meaning unit into typical experience

Source: Adapted from Leedy & Ormrod (2005: 144).

4.3.3 Distinguishing characteristics of Quantitative and Qualitative approaches

Both approaches involve similar processes. For example, the formation of one or more hypotheses, relevant literature reviews data collection and analysis. However, these processes are often combined and carried out in different ways, leading to different research methods.

To demonstrate, quantitative research normally use a standardised procedure to collect some form of numerical data and use statistical procedures to analyse and draw conclusions from the data. Similarly, qualitative research involves collecting an extensive amount of verbal data from a small number of participants and organising those data in a coherent format. A verbal description is then used to portray the situation that has been studied (Leedy & Ormrod, 2005: 94). Table 4.2 presents a summary of the differences between quantitative and qualitative approaches.
TABLE 4.2: DISTINGUISHING CHARACTERISTICS OF QUANTITATIVE AND QUALITATIVE APPROACHES

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>QUANTITATIVE</th>
<th>QUALITATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the purpose of the research?</td>
<td>• To explain and predict</td>
<td>• To describe and explain</td>
</tr>
<tr>
<td></td>
<td>• To confirm and validate</td>
<td>• To explore and interpret</td>
</tr>
<tr>
<td></td>
<td>• To test Theory</td>
<td>• To build theory</td>
</tr>
<tr>
<td>What is the nature of the research process?</td>
<td>• Focused</td>
<td>• Holistic</td>
</tr>
<tr>
<td></td>
<td>• Known variables</td>
<td>• Unknown variables</td>
</tr>
<tr>
<td></td>
<td>• Established guidelines</td>
<td>• Flexible guidelines</td>
</tr>
<tr>
<td></td>
<td>• Predetermined methods</td>
<td>• Emergent methods</td>
</tr>
<tr>
<td></td>
<td>• Somewhat context free</td>
<td>• Context bound</td>
</tr>
<tr>
<td></td>
<td>• Detached view</td>
<td>• Personal view</td>
</tr>
<tr>
<td>What are the data like, and how are they collected?</td>
<td>• Numeric data</td>
<td>• Textual and/or image based data.</td>
</tr>
<tr>
<td></td>
<td>• Standardized instruments</td>
<td>• Informative small sample</td>
</tr>
<tr>
<td></td>
<td>• Representative large sample</td>
<td>• Non-standardized observations and interviews</td>
</tr>
<tr>
<td>How are data analysed to determine their meaning?</td>
<td>• Statistical analysis</td>
<td>• Search for themes and categories</td>
</tr>
<tr>
<td></td>
<td>• Stress on objectivity</td>
<td>• Acknowledgement that analysis is subjective and potentially biased</td>
</tr>
<tr>
<td></td>
<td>• Deductive reasoning</td>
<td>• Inductive reasoning</td>
</tr>
<tr>
<td>How are the findings communicated?</td>
<td>• Numbers</td>
<td>• Words</td>
</tr>
<tr>
<td></td>
<td>• Statistics, aggregated data</td>
<td>• Narratives, individual quotes</td>
</tr>
<tr>
<td></td>
<td>• Formal voice, scientific style</td>
<td>• Personal voice, literary style</td>
</tr>
</tbody>
</table>

Source: Leedy & Ormrod (2005).

4.3.4 Merging Qualitative and Quantitative research approaches.

To a certain extent quantitative and qualitative research designs are appropriate for answering different kinds of questions. As a result, in-depth knowledge of
the subject under research is accumulated due to the combination of both methodologies rather than being limited to only one approach. This process is referred to as triangulation and many research projects can be improved significantly if this approach were used.

In many cases qualitative research methods compensates for the weakness of quantitative research and vice versa, hence, the end result is complementary rather than rivalry (Cooper & Schindler, 2006: 219). The combination of quantitative and qualitative research approaches are illustrated in Figure 4.2.

**FIGURE 4.2: INTERACTION BETWEEN QUANTITATIVE AND QUALITATIVE RESEARCH**

![Diagram showing interaction between quantitative and qualitative research](image)

A compatibility procedure designed to reconcile the two major methodologies by eclectically using elements from each of the major methodologies as these contribute to the solution of the major problem.

Source: Adapted from Leedy (1997)

**4.3.5 Choosing a suitable research approach**

The main objective of this research was to get a detailed picture of how mobile commerce can be used to improve the services of life insurance post sale activities. According to PWC (2008: 75) from a South-African perspective, previous experience in the financial services sector has shown that personal interviews with senior executives using a standard questionnaire offers the best research approach. In this particular research a multiple case study approach
was used. A standard questionnaire was designed and used for the interviews. A combination of closed and opened ended questions were completed by the respondents to capture their personal views, hence to help ascertain the problem.

The questionnaires used contained elements from both qualitative and quantitative research approaches; this was to enhance the richness of the empirical data. To ensure that qualitative data was captured four of the executives were interviewed from each case, either face to face or telephonically. Accordingly, responses were gathered from senior executives in the four companies selected as to their opinions and beliefs about the problem. As a result, a triangulation methodology was used.

**4.4 RESEARCH TYPE**

There are different types of research. According to Creswell (1998: 45) the classification is based on the knowledge the researcher has about the problem before starting the investigation. Some of the types of research available when dealing with a research problem includes: exploratory, descriptive and explanatory (Collis & Hussey, 2003: 10). The types mentioned will be briefly explored.

**4.4.1 Exploratory research**

Describes the type of research conducted because a problem has not been clearly defined. The aim of this type of studies is to look for patterns, ideas or hypothesis rather than testing or confirming a hypothesis. Exploratory research helps determine the best research design, data collection method and selection of subjects (Collis & Hussey, 2003: 11). Exploratory research often relies on secondary research such as reviewing available literature. Such approaches include informal discussions with consumers, employees, management or competitors. Moreover, a more formal approach through case studies, focus groups, pilot studies, and in-depth interviews can be used.

**4.4.2 Descriptive research**

The purpose of this type of research is to describe phenomena as they exist. It is used to obtain information on a particular problem. A classic example is the
description of market characteristics or functions. Descriptive research goes further in examining a problem than exploratory research, due to its nature to ascertain and describe the characteristics of pertinent issues (Cooper & Schindler, 2006: 151-152). Thus, descriptive research is not normally used to create a causal relationship, where one variable affects another. In other words, descriptive research can be said to have a low requirement for internal validity.

4.4.3 Explanatory research

Refers to the type of research that goes beyond merely describing the characteristics, but also in analysing and explaining why or how a phenomenon is happening. During explanatory research there is an implication that the existence or change in one variable causes a change in the other variable. Thus, explanatory research aims to understand phenomena by discovering and measuring causal relations among them (Collis & Hussey, 2003: 11-12; Cooper & Schindler, 2006: 44-45).

Hence the purpose of this research falls within the domain of explanatory and exploratory research type. This was because what underlay the research questions was a process to collect information to investigate and help refine management. In addition to that, this research gathered background information and used previous ways that others have used to solve the problem. Such an exercise lent itself better to exploratory research. Some of this exploratory work was based on literature studies, but most relied on case studies (interviews) to establish more about how mobile commerce can be used to improve post sale activities in the life insurance business. The approach adopted was also partly explanatory because the main problem was to measure the causal relation between mobile commerce and post sale activities in the life insurance business.

4.5 RESEARCH STRATEGY

The research strategy is the general plan that guided how the research questions were answered. There are several different research strategies that can be used when undertaking a research. Some of the research strategies as stated by Yin (1994: 5) includes: case study, experiments, surveys, histories and the analysis of archival information. Each of these strategies has their
merits and demerits depending on the circumstances listed below: the type of research questions, the extent of control over actual behavioural events and the focus on phenomena versus historical events. The various types of the research strategies mentioned above will be briefly explored.

According to Yin (1994: 6) a case study is an empirical enquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident. Case studies are powerful research methodologies that combine individuals or group interviews with record analysis and observations (Cooper & Schindler, 2006: 217). Case studies rely on multiple sources of evidence and therefore have a wide approach to data collection.

Zikmund (2003) explains that experiments have the greatest potential for establishing cause and effect relationships. In addition experimental control provides a basis for isolating causal factors by eliminating outside influences.

A survey is a technique in which information is collected from a sample of people through a questionnaire. Interviews are normally conducted with a large number of respondents using a pre-designed questionnaire and recording their responses for analysis (Cooper & Schindler, 2006: 254).

The goal of the survey is to derive comparable data across subsets of the chosen sample so that similarities and differences can be found. The historical method deals with the past, and is used when no relevant persons are available to comment. Conversely, archival information holds that the goals are to describe the incidence or prevalence of a phenomenon.

The use of archival information is difficult when the topic in question is a new area of research. Table 4.3 shows various circumstances and how each of the strategies relates to them.
### TABLE 4.3: RELEVANT SITUATIONS FOR DIFFERENT RESEARCH STRATEGIES

<table>
<thead>
<tr>
<th>RESEARCH STRATEGY</th>
<th>FORM OF RESEARCH QUESTION</th>
<th>REQUIRES CONTROL OF BEHAVIOURAL EVENTS?</th>
<th>FOCUS ON CONTEMPORARY EVENTS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>How and Why?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Survey</td>
<td>What, who, where, how many and how much?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Archival analysis</td>
<td>What, who, where, how many and how much?</td>
<td>No</td>
<td>No/Yes</td>
</tr>
<tr>
<td>History</td>
<td>How and why?</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Yin (1994: 5)

Most often Research questions are used as important criteria for differentiating among different strategies. The “what”, “who”, and “where” questions and their derivatives “how many’ and “how much” are likely to favour survey and archival records. Similarly, “how” and “why” questions are more suitable for case studies, histories and experiments research strategies.

The objective of this research was to obtain multiple perspectives from different life insurers with the same offering regarding a situation, event or process at a point in time or over a period of time. Hence the strategy suitable for the research was multiple case studies. Multiple case studies were chosen rather than a single case because of the opportunity for cross case analysis. In studying multiple cases a deeper understanding of the problem emerged.

The main question for the research was “How can post sale activities be improved by the use of mobile commerce in life insurance companies”? This was made clearer with the varying opinions of respondents from each case. Specific organisations were selected to be profiled based on their product offering and market performance. In each case respondents representing different departments within the organisation were interviewed and others completed questionnaires. The flexibility of the case and emphasis on
understanding the context of the subject being studied was adopted to enhance the richness of the content.

4.6 RESEARCH DESIGN

A research design is the logic that links the data to be collected and conclusions to be drawn to the initial questions of the study. It is the guide by which the research strategy will be carried out. It indicates the methods and procedures for the collection, measurement and analysis of data (Yin, 1994: 10-12). Similarly, Leedy and Ormrod (2001: 91) explain that the research design provides the overall structure for the procedures followed throughout the research, including the data collection and analysis made. In essence, the research design is the blueprint for fulfilling objectives and answering questions.

4.6.1 Data Collection and type of data

The two kinds of data normally used in a research are primary and secondary data. Primary data refers to data that is gathered for a specific research endeavour, particularly in response to a first time specific problem. On the other hand, secondary data such as existing information is a good example of literature studies (Zikmund, 2003).

There are many methods of collecting data such as observations, interviews, or questionnaires. The greatest use of questionnaires is made by survey strategies. Questionnaires are sent to respondent who answer them without any explanations or influence from the researcher. Questionnaires cannot be too long or too exhaustive because this might lead to unanswered questions. Questionnaires are used as data collection instruments, which will be further discussed.

4.6.1.1 Data collection instrument: The questionnaire

The term questionnaire covers a fairly broad range of possible research techniques. For the purposes of this research, the interview questionnaires were delivered to and completed by the respondents without the researcher's input see Annexure A. Moreover in this research this method was chosen due to a number of advantages it possess, mainly:

- Relatively low cost,
• Convenience and privacy for respondents,
• Protecting respondents from interviewer expectations.

According to Zikmund (2003) the basic requirements for a questionnaire are relevancy and accuracy. For a questionnaire to be relevant only the information that is necessary to solve the problem is required. Accuracy is obtained by maintaining a high validity and reliability possible; these two important concepts are explained in the forth coming section.

Generally the types of questions commonly used with questionnaires are the closed-ended questions and open-ended questions. Responses are limited in closed-ended questions and respondents answers are selected from a number of predetermined alternatives. Whereas open-ended questions provides personal views and opinions in the respondents own words. Hence factual questions are likely to be closed questions, whereas questions which seek opinions are likely to be open-ended (Collis & Hussey, 2003: 179). For the purpose of this research a combination of the two was used in the questionnaires to capture both the facts and opinions from the various respondents. This therefore enhanced the richness of the empirical data in this research.

According to Cooper and Schindler (2006: 339-340) the Likert-scale is regarded to have reliability and is simple to construct, and hence was found to be a suitable instrument. Likert scales are usually graded from seven as very high, four as a neutral scale value, down to one as very low. In this research a four point forced Likert-scale instead of a seven point was used. The ratings were as follows:

• 4 for very high.
• 3 for high.
• 2 for low.
• 1 for very low.

Experience gathered during the pilot study indicated that due to reluctance and time constraints some respondents might frequently choose the neutral scale value when completing the questionnaires. Such instances could lead to
misleading empirical data. As a result the seven point Likert scale was avoided. This helped to steer responses as either favourable or unfavourable. The questionnaires also consisted of a cover letter. A cover letter was used in administering the questionnaires in an effort to increase the response rate (see Annexure A and B).

4.6.1.2 Sample selection
According to McDaniel and Gates (2004: 270), sampling refers to the process of obtaining information from a subset of a larger population. Malhotra (2004: 331) maintains that sampling techniques can be divided as probability and non-probability samples. The choice between non-probability and probability samples is based on considerations such as:

- The nature of the research,
- Relative magnitude of non-sampling versus sampling errors,
- Variability in the population, as well as
- Statistical and operational considerations.

Probability sampling is most commonly associated with survey-based research where the researcher needs to make inferences from the sample about a population to answer the research questions. On the contrary, non-probability sampling enables the researcher to use judgment to select cases that will best answer the research questions and to meet the researchers’ objectives. Accordingly the sample selected in this research was based on market performance and the size of long-term insurers. With an exploratory research the findings are treated as preliminary, and the use of non-probability sampling is warranted (Malhotra, 2004: 333). Hence due to the research methods followed in this study non-probability sampling was used.

4.6.1.3 Selection of companies
As recent as 2008 there were 70 life insurers in South-Africa, consequently the selection was based on market performance and size of the firm. The dominance of the respondents’ firm selected then played a key role in their
selection as target informants for this study. Selected companies were promised confidentiality due to the sensitive nature of the information provided.

4.6.1.4 Selection of respondents
After selecting the companies attention turns to the respondents within the organizations. As mentioned earlier, the main purpose of this research study was to get a detailed picture about mobile commerce applications and its effect on life insurance post sale activities. Previous experience in the South-African financial services sector has shown that personal interviews with senior executives using a standard questionnaire offers the best research approach (PWC, 2008: 75). The group of senior executives that were asked to participate in this research study were heads of various departments in the life insurance value chain (see Figure 2.2). However, particular attention was given to functional heads whose operations where critical within the post-sale activities of the life insurance value chain. Examples are the customer service, IT, asset management and claims departments.

4.6.1.5 Sample Size
Malhotra and Birks (2006: 360) explain that the sample size refers to the number of elements that are included in the study. The nature of the research has an impact on the sample size. For example in qualitative research, the sample size is typically small; conversely for descriptive surveys larger samples are required. As a combined exploratory and explanatory research, the current research justified a small sample.

All the four life insurers chosen for the case study were represented by five departmental heads, hence a total of 20 respondents served as the target population for the empirical study. At least three out of the five heads of departments came from the insurers Port-Elizabeth offices. The remainder was from Johannesburg and Cape-Town. The questionnaires were electronically administered using e-mail as the data gathering instrument.

4.6.2 Data Analysis
Once the data collection has been completed and the data have been captured, the next step is the analysis. The purpose of data analysis is to interpret and
draw conclusions from the mass of collected data (McDaniel & Gates, 2004: 31). Analysis procedures can vary widely, from simple frequency distributions to sample statistics measures to multivariate data analysis techniques. Yin (1994: 9) maintains that all case studies should start with a general analytical strategy. The analytical strategies regarding the case studies provide the researcher with a system through which priorities could be set for what is needed to be analysed. Consequently, this research study entailed the analysis of all face to face interviews as well as the electronic questionnaires completed by respondents.

There are various ways in analysing case study data. Examples are cross case analysis and within case analysis. When using within case analysis the empirical data is compared with the literature reviewed. A cross case analysis is done by comparing the findings in each case from the within case analysis with each other (McDaniel & Gates, 2004: 333-336). A cross case methodology was used to analyze empirical data for this study.

4.7 RESEARCH QUALITY STANDARDS

Two important concepts used as a guide for accuracy were reliability and validity. Reliability is used for checking the accuracy of the collected data while validity is used to keep the research focus on track. According to Leedy and Ormrod (2001: 31) the validity and reliability of the research measurement instruments influence the extent to which one can learn about the area being studied. The probability that statistical significance will be obtained in the data analysis and the extent to which the researcher can critically analyze, recommend and draw conclusions from the data is influenced by reliability and validity. It is imperative that the integrity of the work being researched is based on its credibility thus conforming to the standards of validity and reliability. The concept of validity and reliability are now addressed.

4.7.1 Reliability

Reliability deals with the accuracy of the research findings. This thus refers to the consistency with which a measure produces the same results with the same or comparable populations (McDaniel & Gates, 2004: 125).
Similarly, Leedy & Ormrod (2001: 99) describe reliability as the extent to which the indicators yield similar results on repeated measures. This implies, for example, that if another researcher repeated exactly the same procedures as described by a researcher and conducted the same case study the findings and conclusions should corroborate.

Reliable tools provide constant measures at different times under different conditions. Thus, reliability is the degree to which measures are free from random error and, therefore, provide consistent results. There are three ways to assess reliability: test-retest, the use of equivalent forms and internal consistency (McDaniel & Gates, 2004: 199, 206). The different forms of assessing reliability normally apply separately to different studies. Consequently the main objective for reliability is to reduce the errors and biases in a research study. For the purpose of this study internal consistency was critical since several internal constructs were measured and this needed to be done with a high degree of internal reliability.

4.7.2 Validity

Validity refers to the degree to which the measuring instrument measures what the researcher really intends to measure (McDaniel & Gates, 2004: 125). It also refers to the extent to which the measurement instrument and procedure are free from both systematic and random errors. Hence, the measuring instrument is valid only if differences in scores reflect the true differences in the attributes being measured rather than systematic or random errors. Validity can be observed from different viewpoints. Examples include face, content, criterion-related and construct validity (McDaniel & Gates, 2004: 202).

Validity can be sub-divided into internal and external constructs. The internal validity works more with explanatory case studies in which the main task is to find out if changes in one event may lead to a change in another event. Further to that, the concerns regarding case studies internal validity may be extended to the broader dilemma of making assumptions. The external validity checks if the empirical findings in a data can be generalised beyond the immediate case study. The external validity problem is an obstacle in doing case study research
in general. On the other hand, single case studies offer a poor basis of generalising as compared to a multiple case study. As a result the case study followed in this research is a multiple case study. For the purpose of this research the questions were scrutinized to ensure a high degree of internal validity.

4.7.3 Pilot Study

Malhotra and Birks (2006: 345) explain that pilot studies refer to the testing of the questionnaire on a small sample of respondents to recognize and reduce potential problems.

In this research a pilot test of the questionnaire was carried out. A pilot group of people knowledgeable about mobile commerce were used as a sounding board against which to test the questionnaire. Based on their feedback the questionnaires were edited before being sent to respondents.

4.7.4 Non responses and rate of return

The non-response and rate of return is a critical limitation in any research. A respondent’s familiarity and competence with mobile commerce is a key determinant of such an individual’s ability to provide appropriate responses. The more they are familiar, the better the calibre of responses and vice versa. According to Cooper and Schindler (2006: 713) non-response error develops when a researcher cannot locate the respondent with whom the study requires communication. Similarly, nonresponse can also occur when the targeted participant refuses to complete the questionnaire.

To reduce non-response rate in this research, personal contact was made with each respondent in the insurer’s Port-Elizabeth office. Moreover, regular follow-up was made telephonically with respondents in their Johannesburg and Cape-town offices. A well-structured questionnaire, a clear format, along with an interesting topic for insurers motivated them to participate in the study. A total of 20 questionnaires were completed by designated respondents.
4.8 CHAPTER SUMMARY
The current chapter, after an introduction, began with further discussion about the research approach. It was argued that a triangulated research approach was suitable for this study. The next subject discussed was the research type and strategy. The research type was a combination of an explanatory and exploratory research strategy.

Further on, the research design was presented which included the data collection and type of data, and also, data analysis. In this study, a questionnaire was primarily used as the data collection instrument. A total number of twenty respondents from four life insurance companies were used in this study. The last section discussed the research quality standards; the reliability, validity, pilot study as well as non-responses and rate of return. The next chapter incorporates the empirical presentation of the data collected and analysis of the findings.
CHAPTER FIVE

EMPIRICAL DATA PRESENTATION AND ANALYSIS OF FINDINGS

5.1 INTRODUCTION

In Chapter 4, the process of the research design and methodology, as well as sample selection methodology was discussed. The questionnaire design and data analysis procedure and the approach relevant to the current empirical study were also discussed. The focus of this chapter is on data presentation and the analysis of the empirical findings. The content flow of each chapter will follow the chronology of the questionnaire and the empirical results. Tables and figures as well as a cross case analysis was used to enhance the interpretation and understanding of the empirical findings.

The companies selected for the case study were major long-term insurers in the insurance marketplace. The firms contacted were Old mutual, Momentum, Sanlam, and Discovery life. The information provided is considered proprietary and remains confidential. The empirical findings from the four life insurers are therefore presented in a disguised format as follows: case 1, case 2, case 3 and case 4. These research findings are therefore considered to represent a comprehensive overview as to how the use of mobile commerce can improve the services of life insurance post-sale activities.

5.2 SECTION ONE: PERSONAL PROFILE

In this section, the respondents were asked to provide socio-demographic information. Six variables were extracted and the main idea was to describe the personal profile of the respondents. The information gathered was grouped as follows: Age and professional work experience in insurance, field of study and professional qualifications as well as department and current position. This was done to provide the various backgrounds of the respondents used in the study. A brief discussion of the variables mentioned above will be provided.
5.2.1 Age and professional work experience in insurance

The first item in this section was the age of respondents. The average age of respondents within cases 1 and 2 was 37 years whereas the average within cases 3 and 4 was 32 years. The insurers from cases 3 and 4 have recruited younger employees which count when analysing the adoption and use of mobile commerce as compared to employees of an older generation. Table 5.1 shows the total distribution of the respondent’s age.

 TABLE 5.1: AGE DISTRIBUTION OF RESPONDENTS

<table>
<thead>
<tr>
<th>AGE RANGE OF RESPONDENTS</th>
<th>NUMBER OF RESPONDENTS</th>
<th>PERCENTAGE OF RESPONDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-34 YEARS</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>35-45 YEARS</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>46-55 YEARS</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>56-65 YEARS</td>
<td>3</td>
<td>15%</td>
</tr>
</tbody>
</table>

The second item to be provided in this section is the professional work experience of the respondents. Out of the 20 respondents 10 percent had up to five years work experience, 50 percent had up to ten years, 25 percent had up to twenty years and 15 percent also had over twenty years of experience in insurance. This gave an indication of the expertises and knowledge of the respondents. The results show that 75 percent of the respondents with over ten years of experience in insurance were also very familiar with the concept and application of mobile commerce. This phenomenon is reflected in their opinions and insightful contributions made to this study.

5.2.2 Field of study and professional qualifications

Field of study and professional qualifications of the respondents were other items included in the first section which was captured under personal profile. In general, the level of education varied from Diplomas, Bachelor and honours
degrees, Post-graduate and Doctoral qualifications. Field of studies included business management, marketing, finance, accounting, insurance, actuarial science, banking, computer science and information systems, and logistics among others. Fifty percent of the respondents hold BSc Honours degrees, another 30 percent have post graduates qualifications and the remaining 20 percent have doctoral qualifications.

Furthermore, the results also indicate that 30 percent of the respondents have chartered status with professional institutes such as Chartered Insurance Institute (CII) and Chartered Accountants (CA). This indicates that the insurers represented in this study have high credibility in terms of their human capital and this is evident in their performance in the industry. Finally, the dominant field of study of the respondents in this research was insurance, management and computer sciences.

5.2.3 Department and current position

The selection of the respondents was based on departments whose activities where critical in the post-sale activities of the life insurance value chain. Their positions vary within their various companies and as such 80 percent were functional heads and the remaining 20 percent were directors. Functional heads from marketing, IT department, administration, asset management and claims department made significant contributions to this study.

5.3 SECTION TWO: VIEWS AND CURRENT USE OF MOBILE COMMERCE

Four questions were included in this section. Specifically respondents were asked to provide information as to their familiarity with mobile commerce and their opinions as to the extent at which mobile commerce will affect life insurance post-sale activities.

Respondents were also asked what their companies views were towards mobile commerce. Finally, this section focused on the opinion of the respondents about the extent of mobile commerce usage in their respective companies and their satisfaction levels. A brief discussion will be provided for each them.
5.3.1 Respondents familiarity and effects of mobile commerce

The first question in this section was the assessment of respondent’s familiarity with mobile commerce in general. In other words, to what extent the respondents were familiar with the concept and application of mobile commerce? Table 5.2 and Figure 5.1 depict answers to this question.

Figure 5.1 reflects that a total of 80 percent (very high and high) of the respondents were very familiar with the concept and application of mobile commerce. On the other hand, 20 percent of the respondents declared that the extent of their familiarity with mobile commerce applications was low. Insurers in cases 3 and 4 have a younger generation of employees. This implies interest in the trial, usage and subsequently the adoption of new technology. Accordingly the comparative level of awareness of the concept and application of mobile commerce is more than those in cases 1 and 2.

TABLE 5.2: LEVEL OF AWARENESS AND EFFECTS MOBILE COMMERCE

<table>
<thead>
<tr>
<th>Familiarity and effects of mobile commerce</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents familiarity with mobile commerce</td>
<td>2(10%)</td>
<td>14(70%)</td>
<td>4(20%)</td>
<td>0</td>
</tr>
<tr>
<td>Effects of mobile commerce on post-sale activities</td>
<td>4(20%)</td>
<td>14(70%)</td>
<td>2(10%)</td>
<td>0</td>
</tr>
</tbody>
</table>

FIGURE 5.1: GRAPHICAL REPRESENTATION OF TABLE 5.2
The second item in this section focused on the respondent’s view on the effects of mobile commerce on life insurance post-sale activities. The main idea behind this question was to get the general picture as to how respondent’s feel mobile commerce can improve the services of post-sale activities in the value chain. The respondent’s answers to this question are shown in Table 5.2 and Figure 5.1. Ninety percent of the respondents believe that mobile commerce platforms will impact on life insurance post-sale activities. The remainder rated this impact as low. On the other hand, there was a strong correlation in the views expressed by the respondents regarding the impact of mobile commerce on life insurance post-sale activities. This is in line with the theory of UNCTAD (2002) that explains that the purpose of m-insurance is not necessarily related to a sales oriented mobile business strategy. The objective is to increase efficiency and enhance the organizations ability in all stages of post sale activities.

5.3.2 Respondents view about mobile commerce

The options provided regarding the opinions of the respondents as to how their company view mobile commerce were as follows: as an opportunity, a challenge, a threat or not important to their company. During the interview the respondents were asked to answer this question on behalf of their company. As shown in Table 5.3, 80 percent of the respondents view mobile commerce as an opportunity for their company. The remaining 20 percent of the respondents found it as a challenge.

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Challenge</th>
<th>Threat</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>16(80%)</td>
<td>4(20%)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Some of the respondents also commented that the choice of opinion also depended strongly on many factors, for instance, the insurance company’s competitiveness and their ability and compatibility with this new business tool.

During the face-to-face interview conducted with selected respondents a broad array of opinions emerged. A detailed discussion is thus provided. Much of this discussion centred on mobile insurance products and services. Significant
developments in the mobile platform were predicted by all the respondents interviewed. The respondent from case 1 commented that South-Africa has about five-million internet users versus 11 million mobile phone users, and that more distribution and services will take place via the handset. Another insightful view given by the respondents from case 2 and 3 was the use of stochastic modelling by their company at the lower end of the market. This, they explained, enables their company model relationships mathematically to simulate what might happen in a given time period. The respondents also indicated that the trend of life insurance business is heading towards more customer empowerment and self service. Finally there was an implication by all of the respondents interviewed that their company was close to a full online interaction.

The general views expressed amongst all the respondents regarding technological applications in insurance were as follows:

- Improved data mining and management information systems;
- Seamless interfaces with the brokerage houses and where the provider controls prices and all aspects of the relationship are visible;
- Straight through processing (which is related to the application above);
- Biotechnology (much more effective screening with DNA testing);
- Applications that improve the efficiency of reserves;
- Improvements in the cost of risk capital; and
- Improvements in productivity.

### 5.3.3 Extent of usage of mobile commerce functions by insurers

The results show that customer relationship management is highly used by life insurers; this was confirmed by 100 percent of the respondents who rated CRM as having a high extent of usage in their companies. The next most used mobile commerce function in providing services were field service automation followed by sales force automation.
Mobile commerce functions can also make important contributions to post-sale services through systems integrations capabilities and mobile messaging service (see Table 5.4).

Mass customization capabilities recorded low ratings from respondents. With the increasing advisory role of insurers and growth in the middle market this is a gap, considering that mobile technology has the ability to make valuable contributions.

TABLE 5.4: USE OF MOBILE COMMERCE FUNCTIONS BY INSURERS

<table>
<thead>
<tr>
<th>Mobile commerce function</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer relationship management capabilities</td>
<td>18(90%)</td>
<td>2(10%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Systems integration capabilities</td>
<td>4(20%)</td>
<td>4(20%)</td>
<td>12(60%)</td>
<td>0</td>
</tr>
<tr>
<td>Mobile messaging service</td>
<td>13(65%)</td>
<td>7(35%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Field service automation</td>
<td>18(90%)</td>
<td>2(10%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mass customization capabilities</td>
<td>0</td>
<td>0</td>
<td>4(20%)</td>
<td>16(80%)</td>
</tr>
<tr>
<td>Sales force automation</td>
<td>16(80%)</td>
<td>3(15%)</td>
<td>1(5%)</td>
<td>0</td>
</tr>
<tr>
<td>Mobile commerce applications are not important to our growth plans</td>
<td>0</td>
<td>0</td>
<td>3(15%)</td>
<td>17(85%)</td>
</tr>
</tbody>
</table>
5.3.4 Level of satisfaction with mobile commerce functions

In the related question of how satisfied respondents were with the overall performance of their company’s mobile commerce functions, 90 percent were highly satisfied with the effectiveness of these functions. Conversely, only 10 percent had a low satisfaction level. Table 5.5 displays the results.

**TABLE 5.5: LEVEL OF SATISFACTION WITH MOBILE COMMERCE FUNCTIONS**

<table>
<thead>
<tr>
<th></th>
<th>Very high</th>
<th>High (75%)</th>
<th>Low (10%)</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile commerce applications are not important to our growth plans</td>
<td>3 (15%)</td>
<td>15 (75%)</td>
<td>2 (10%)</td>
<td>0</td>
</tr>
<tr>
<td>Sales force automation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass customization capabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field service automation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile messaging service</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems integration capabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer relationship management capabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4 FACTORS WITH AN INFLUENCE ON DEPLOYING MOBILE COMMERCE

In section three and four of the questionnaire (see Annexure B); the four-point forced Likert scale questions measured the influence of the factors relevant for the deployment of mobile commerce applications. This section reports on the results of validating the Fit Viability Model (see Figure 3.2) and provides further analysis of the remaining empirical data. In this current section both quantitative analyses as well as cross case analyses of the results will be provided chronologically.

5.4.1 Validating the Fit-Viability Model

All the insurers from the case studies use the various mobile commerce methods to support their field agents in servicing their clients after a policy has been sold. This support is also enhanced by providing customized service to meet client’s specific needs. As insurance agents have to travel to meet with their customers and help them make decisions on their insurance policies, the fit between task and mobile technology is high.

The results indicate that the life insurance companies already had a PC version of the mobile life-insurance advising system before the system was ported onto mobile devices. Therefore, the cost was low for the companies. However, respondents from case 1 and case 2 explained that agents were asked to purchase their own mobile device. This added some uncertainties that some of them might not want to buy and hindered the likelihood of their reaping benefits. The mobile collection and advising system were included in the companies’ annual budget; hence all funds for software and hardware were provided by the companies. Competition in the life insurance market is very high and the adoption of mobile commerce methods should be able to reduce the transaction costs. The usage frequencies were also very high for both systems. Part of the systems maintenance was outsourced to specialised sub-contractors to ensure cost-effective and efficient run at all times. The economic viability is thus high.

In most cases the companies had good information control and highly integrated software and hardware. However, in all cases data security concerns
and access control were rated as very high obstacles. The mobile systems in case 3 and case 4 were highly integrated with other information systems whereas systems integration capabilities were fairly low in case 1 and case 2.

In all cases the competence of the IT personnel was rated high. The results also show that the IT infrastructure in most cases was ready and scored high in most dimensions. Mobile commerce was viewed as an opportunity by 80 percent of the respondents and hence was used as a strategy to advance the competitiveness of the organization.

Most of the respondents added that their policy advice systems were very effective and a high satisfaction rate was given. Therefore, the organizational support to continuously use mobile commerce in the services of post-sale activities is high. The results show that the fit viability model is useful in evaluating the organizational adoption of mobile commerce.

5.4.2 Section three: Factors hindering deployment of mobile commerce

In this section, major obstacles and barriers for insurers regarding mobile commerce applications were addressed. Based on the literature and preliminary study, an exploration of a full list of potential obstacles to mobile commerce implementation was developed. Twelve questions were listed concerning the major obstacles that hinder the deployment of mobile commerce in life insurance companies. Respondents were asked to rate these factors according to their company’s capabilities. The question that was posed was: To what extent will each of the following factors hinder the deployment of mobile commerce in their company’s?

To achieve the purpose of this part a clarification of the obstacles mentioned in Table 5.6 from the respondent’s point of view will be provided. They are, as mentioned, creating the basis for answering the research questions.
TABLE 5.6: MAJOR OBSTACLES FOR MOBILE COMMERCE APPLICATIONS

<table>
<thead>
<tr>
<th>MAJOR FACTORS</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware and network infrastructure (Computers, internet, intranet and</td>
<td>0</td>
<td>4(20%)</td>
<td>13(65%)</td>
<td>3(15%)</td>
</tr>
<tr>
<td>extranet support)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of software packages, processes and systems</td>
<td>0</td>
<td>0</td>
<td>14(70%)</td>
<td>6(30%)</td>
</tr>
<tr>
<td>Lack of technical expertise in mobile commerce applications</td>
<td>2(10%)</td>
<td>2(10%)</td>
<td>4(20%)</td>
<td>12(60%)</td>
</tr>
<tr>
<td>Low and infrequent internet usage</td>
<td>16(80%)</td>
<td>3(15%)</td>
<td>1(5%)</td>
<td>0</td>
</tr>
<tr>
<td>Security concerns</td>
<td>18(90%)</td>
<td>2(10%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complexity of mobile commerce technologies</td>
<td>2(10%)</td>
<td>12(60%)</td>
<td>4(20%)</td>
<td>0</td>
</tr>
<tr>
<td>Resistance to change</td>
<td>2(10%)</td>
<td>6(30%)</td>
<td>10(50%)</td>
<td>2(10%)</td>
</tr>
<tr>
<td>Internal conflicts and the fear of disintermediation by agents and brokers</td>
<td>0</td>
<td>0</td>
<td>12(60%)</td>
<td>8(40%)</td>
</tr>
<tr>
<td>Legal and regulatory concerns</td>
<td>12(60%)</td>
<td>5(25%)</td>
<td>2(10%)</td>
<td>1(5%)</td>
</tr>
<tr>
<td>Performance of supporting industries such as internet and telecom service</td>
<td>18(90%)</td>
<td>2(10%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>providers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of broadband in South Africa</td>
<td>6(30%)</td>
<td>9(45%)</td>
<td>3(15%)</td>
<td>2(10%)</td>
</tr>
<tr>
<td>Cumbersome and inefficient legacy systems</td>
<td>4(20%)</td>
<td>16(80%)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The respondent’s answers to these questions are displayed in Table 5.6 and Figure 5.3. As illustrated security concerns, low and infrequent internet usage and performance by supporting industries have a very high extent of hindering the deployment of mobile commerce in these companies. Moreover, the complexities of mobile commerce technologies, legal and regulatory concerns, cost of broadband in South-Africa and cumbersome and inefficient legacy systems also had a high extent of hindering the deployment of mobile commerce.

Conversely, as displayed in table 5.6 all four companies are well equipped in hardware and network infrastructure, software packages and technical expertise in mobile commerce applications. In summary, the respondents believe that these 12 major obstacles will hinder the deployment of mobile commerce to a certain degree. The respondents strongly agree on all of them but the intensity of the effect is slightly varied.
FIGURE 5.3: GRAPHICAL REPRESENTATION OF TABLE 5.6

- Cumbersome and inefficient legacy
- Cost of broadband in South Africa
- Performance by supporting industries
- Legal and regulatory concerns
- Internal conflicts and the fear of...
- Resistance to change
- Complexity of m-commerce technologies
- Security concerns
- Low and infrequent internet usage
- Lack of technical expertise in m-
- Lack of software
- Hardware and network infrastructure

Legend:
- Very low
- Low
- High
- Very high
5.4.3 Section four: Competitive positioning and the benefits derived from mobile commerce

In this section respondents were asked to rate the benefits derived from mobile commerce both from their company and customer’s perspective. Furthermore, the respondents were asked to rate the extent at which mobile commerce contributes to their competitive positioning in the market. Table 5.7 and 5.8 depict the ratings from the respondents.

5.4.3.1 Benefits of mobile commerce for companies

The first part of this question was designed to capture the views of the respondents regarding their opinions about the benefits of mobile commerce as a service tool to their company. Nine views were captured during the pilot study and were presented to the respondents to indicate the extent of the benefit. Table 5.7 displays the results.

Table 5.7: BENEFITS OF MOBILE COMMERCE FOR INSURERS

<table>
<thead>
<tr>
<th>Key benefits</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase sales agents work performance</td>
<td>18(90%)</td>
<td>2(10%)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Streamline office personnel procedures</td>
<td>1(5%)</td>
<td>19(95%)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Customer contact and service enhancement</td>
<td>3(15%)</td>
<td>16(80%)</td>
<td>1(5%)</td>
<td>0%</td>
</tr>
<tr>
<td>Increased customer policy extension rates</td>
<td>4(20%)</td>
<td>13(65%)</td>
<td>3(15%)</td>
<td>0%</td>
</tr>
<tr>
<td>Company's cost savings</td>
<td>2(10%)</td>
<td>18(90%)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Market expansion flexibility, scale and reach</td>
<td>20(100%)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Contribution to overall company profit</td>
<td>20(100%)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Increase overall company performance</td>
<td>2(10%)</td>
<td>18(90%)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Enhance competitive advantage</td>
<td>4(20%)</td>
<td>14(70%)</td>
<td>2(10%)</td>
<td>0%</td>
</tr>
</tbody>
</table>
In the second part of the question, respondents were asked to provide additional benefits derived from mobile commerce. A few of the respondents explained that their companies were in a process of providing online claims. As they explained, online claims settlement will bring substantial service improvements. Insurers could create substantial value by using the internet for online claims settlement as well as policy administration.

A new development currently under test is the online entry of claims information using digital photos where appropriate. These photos can be taken from mobile devices in real-time. Mobile technology will also allow clients to follow up the progress of their claims settlement. Moreover clients can use mobile technology to search for and send information to the administrator handling their claims via the internet regardless of time or location. Eventually when this process is completed, claims can be paid electronically. This thus leads to more transparency and managing the speed of claims settlement.

As explained by the respondents mobile commerce methods bring a substantial improvement to service quality. Some of the other benefits include:

- Continuous service round the clock;
• No restrictions imposed by national boarders;
• Faster response times; and
• Cross and up selling options.

5.4.3.2 Benefits of mobile commerce to customers

The first part of this question was designed to gauge the views of the respondents regarding their opinions about the benefits of mobile commerce to their customers. Five views were proposed during the pilot study and were presented to the respondents to indicate the extent of these benefits to their customers. Table 5.8 and Figure 5.5 show these results.

Table 5.8: BENEFITS OF MOBILE COMMERCE TO CUSTOMERS

<table>
<thead>
<tr>
<th>Key benefits</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings through improved transparencies and comparisons with other services</td>
<td>3(15%)</td>
<td>16(80%)</td>
<td>1(5%)</td>
<td>0</td>
</tr>
<tr>
<td>Limitless access to company's support services</td>
<td>4(20%)</td>
<td>14(70%)</td>
<td>10%</td>
<td>0</td>
</tr>
<tr>
<td>Improved efficiency and transaction flow, visibility and control</td>
<td>0</td>
<td>2(10%)</td>
<td>12(60%)</td>
<td>6(30%)</td>
</tr>
<tr>
<td>Tailored services for customers specific needs</td>
<td>2(10%)</td>
<td>18(90%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Increased customer satisfaction levels</td>
<td>19(95%)</td>
<td>1(5%)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

FIGURE 5.5: GRAPHICAL REPRESENTATION OF TABLE 5.8
In the second part of the question, respondents were asked to provide information as to additional benefits that customers can derive from mobile commerce. A few of the respondents explained that from a customer’s point of view some of the other benefits can include:

- Depth of available information on products and services; and
- Real-time solution for customer enquiry.

5.5 CROSS CASE ANALYSIS

In this part of the chapter, the four case studies comprising Old Mutual, Sanlam, Discovery and Momentum will be compared with each other. During the analysis the insurers will be represented in a disguised format as follows: case 1, case 2, case 3 and case 4. The content flow of this section will follow the chronology of the research questions in this study.

5.5.1 Extent of usage of mobile commerce functions by insurers

Rowley (2004) explains that a stable customer base is a core asset, since it is more expensive to acquire new customers than to retain existing customers. Business success is thus achieved through focus on long-term relationships with customers. All the cases selected for this study use the CRM systems to collect precise information about the customers. The method used is through a more interactive marketing and then advice their customers as to how they can receive products and services suitable for their needs. This thus helps the insurers to establish a long-term relationship when customers receive excellent services. The service provided by these insurers is reflected in the literature reviewed.

Analytical CRM is a combination of a data warehouse with business intelligence analytical systems. The objective of such a system is to give firms competitive intelligence, the power to tailor services, (for example, efforts to single-customer specifics) and the data-to-action speed to realize value from efforts much faster (Scullin, Fjermestad, & Romano Jr. 2004). All the companies use their channels and third party databases to gather information about customers. In addition the databases of case 3 and case 4 can select the customers they want to target
and then send electronic mail to these customers as they log onto the company’s website. Subsequently the insurers using the theories provided by Scullin et al (2004) analyses the information of the customers and target these customers with suitable products and services.

Finally the results from all four cases indicate that CRM systems support all stages of the interaction with the customer from policy sales, through policy administration to post-sale services. Park and Kim 2003 contend that firms enabled by advanced information technologies can collect vast amount of data about their customers and turn it into useful information for their strategic business purposes. Results from the study indicated that all of the companies had adequate IT infrastructure to support their growth plans. However, case 1 and case 2 are stronger in non-information technology tools such as the capabilities of its employees to collect high quality and first hand customer feed-backs due to their strong branch presence. In terms of collecting information case 1 and case 2 are stronger in providing the information of products and services to the customers, receiving feed-backs and reacting faster to such information.

The other mobile commerce functions such as mobile messaging service, field service automation and sales force automation were heavily used by all four companies. This is consistent with the theory of Stresling (2003) who argues that wireless technologies are bringing the insurance industry up to speed with the special needs of contemporary customers. For example, insurance agents can answer most of their customers’ questions in the field. Also, using mobile messaging service (MMS) is beneficial for key employees. For example, executives can be contacted anywhere and at anytime to give their input to those decisions that will immediately impact on the organization. Systems integration capabilities were more successful in case 3 and case 4 due to their current IT infrastructure. Mass customization capabilities received low ratings from all the respondents. With the increasing advisory role of insurers and growth in the middle market this is a gap, considering that mobile technology has the ability to make valuable contributions.
5.5.2 Factors hindering the deployment of mobile commerce

There are 12 main factors that hinder the deployment of mobile commerce as seen during the pilot study of the questionnaire (see Annexure B). These can be further classified into internal and external obstacles. As evidenced in the ratings by the respondents (see table 5.6), the external obstacles recorded higher ratings on the extent of their hindrance. These factors are security concerns, legal and regulatory concerns and the performance by supporting industries. This corroborates the theory by Coyle (2001) that explains that technical restrictions of mobile devices and wireless communication, business concerns and legal constraints complicate the practical use of mobile commerce. In principle, without any support of telecommunication to develop and provide Internet services, appropriate legislation and regulation to protect copyright and also if internet services were far less secured, no company can deploy any electronic business effectively. Inefficiency of each of them will definitely interrupt mobile commerce applications. However, the insurance companies can have less influence on these external variables.

The internal factors are more influenced by the performance of the various companies. As a result, most of these factors have a varying extent on their hindrance on the deployment of mobile commerce. In case 1 and case 2 the greatest technological weakness was identified as cumbersome and inefficient legacy systems. This was due to their old IT infrastructure setup. These systems are unable to integrate with new innovative platforms; they also manage data badly and prevent the ability to cross-sell. On the other hand the IT infrastructure of case 3 and case 4 integrate with new technology relatively well. Although this problem is gradually changing in case 1 and case 2, in the past there has been a lack of overall comparison between companies on claims. As a respondent from case 1 explained, an example of this disadvantage can allow one person make claims to three different companies. Accordingly, the theory explains that firms will also have to make fundamental changes in organisational behaviour, develop new business models and eliminate some of the inefficiencies inherent in the old organizational structures (Lim & Siau, 2003: 11). For example implementing mobile commerce is about reengineering the way firms do their business. It requires rethinking how the
operational functions of the business will be performed to satisfy the needs of consumers.

5.5.3 Competitive positioning and the benefits of mobile commerce

The results from the study reveal numerous similarities regarding the benefits derived from mobile commerce applications. All the four cases see improvements in company’s cost savings, market expansion and reach, operational efficiency and enhanced competitive advantages. However the CRM systems in cases 3 and 4 where far more advanced, and enhanced their ability to provide much better personalized services to customers.

5.6 CHAPTER SUMMARY

This chapter provided the results and analysis obtained from the empirical findings. Firstly, the results for validating the model used were presented. Next, the quantitative data resulting from this study were presented. The findings were compared to the literature reviewed earlier. A cross case analysis was done to compare the findings in each of the four cases with one another. The analysis and interpretation of the results was approached with the aim of fulfilling the research objectives described in chapter one to help clarify the underlying assumption of this study.

A synopsis of the findings and conclusions is presented in chapter six. The implications of these findings to management and the possible avenues for further research will be discussed. Finally recommendations based on these findings will be provided.
CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION
In chapter five, the results of the empirical studies were presented and analysed. The results obtained were compared with the appropriate literature reviewed in chapters two and three of the study. In this chapter, a synopsis of the findings will be provided. This is to help the researcher draw meaningful conclusions from the main and sub-problems. Subsequently, implications for insurance management and implications for further research will be discussed. The problems and limitations encountered during the research study will also be provided. The chapter will end with recommendations made based on the main findings of this study.

6.2 SYNOPSIS OF THE FINDINGS
The purpose of this study was to determine how life insurers can use mobile commerce to improve their post-sale activities. To help achieve this objective chapter one provided an overview of the background and the rationale for the study, together with the research problem and sub-problems. This synopsis will focus on the summary of the main findings identified in the previous chapter.

6.2.1 Main and sub problems
The main problem of the study was identified in chapter one as:

**How can mobile commerce be used to improve the services of life insurance post-sale activities?** Three sub-problems were extracted from the available literature as a solution to the main problem of the study. These are:

**R.Q.1** What are the views of life insurance companies regarding mobile commerce and how is it currently used in life insurance companies?

**R.Q.2** What are the factors or issues hindering the use of mobile commerce applications in life insurance post sale activities?

**R.Q.3** How does mobile commerce affect competitive positioning and what are the benefits of mobile commerce to consumers and insurance companies?
The synopsis of this study is now presented:

- **Personal profile**

  The average age of respondents within cases 1 and 2 was 37 years whereas the average within cases 3 and 4 was 32 years. The insurers from cases 3 and 4 have recruited younger employees which count when analysing the adoption and use of mobile commerce as compared to employees of an older generation.

  The second item in this section was the professional work experience of the respondents. This gave an indication of the expertise and knowledge of the respondents. The results show that 75 percent of the respondents with over ten years of experience in insurance were also very familiar with the concept and application of mobile commerce. This phenomenon is reflected in their opinions and insightful contributions made to this study. Functional heads from marketing, IT department, administration, asset management and claims department made significant contributions to this study.

- **Views and current use of mobile commerce**

  Eighty percent of the respondents were very familiar with the concept and application of mobile commerce. Insurers in cases 3 and 4 have a younger generation of employees. This implies interest in the trial, usage and subsequently the adoption of new technology. Accordingly the comparative level of awareness of the concept and application of mobile commerce is more than those in cases 1 and 2. Ninety percent of the respondents believe that mobile commerce platforms will impact on life insurance post-sale activities. The remainder rated this impact as low. On the other hand, there was a strong correlation in the views expressed by the respondents regarding the impact of mobile commerce on life insurance post-sale activities.

  Eighty percent of the respondents view mobile commerce as an opportunity for their company. The remaining 20 percent of the respondents found it to be a challenge to their company. Some of the
respondents commented that the choice of opinion depended strongly on many factors, for instance, the insurance company’s competitiveness and their ability and compatibility with this new business tool.

Significant developments in the mobile platform were predicted by all the respondents. The respondent from case 1 commented that South-Africa has about five-million internet users versus 11 million mobile phone users, and that more distribution and services will take place via the handset. Another insightful view given by the respondents from case 2 and 3 was the use of stochastic modelling by their company at the lower end of the market.

The general views expressed among all the respondents regarding technological applications in insurance were as follows:

- Improved data mining and management information systems;
- Seamless interfaces with the brokerage houses and where the provider controls prices and all aspects of the relationship are visible;
- Straight through processing (which is related to the application above); and
- Biotechnology (much more effective screening with DNA testing).

The results show that customer relationship management is highly used by life insurers. This was confirmed by 100 percent of the respondents who rated CRM as having a high extent of usage in their companies. The next most used mobile commerce function in providing services were field service automation followed by sales force automation. In the related question of how satisfied respondents were with the overall performance of their company’s mobile commerce functions, 90 percent are highly satisfied with the effectiveness of these functions.
• **Factors hindering the deployment of mobile commerce**

In most cases the companies had good information control and highly integrated software and hardware. However, in all cases data security concerns and access control were rated as very high obstacles. The mobile systems in case 3 and case 4 were highly integrated with other information systems whereas systems integration capabilities where fairly low in case 1 and case 2. According to the findings security concerns, low and infrequent internet usage and performance by supporting industries have a very high extent of hindering the deployment of mobile commerce in these companies.

In case 1 and case 2 the greatest technological weakness was identified to as cumbersome and inefficient legacy systems. This was due to their old IT infrastructure set-up. These systems are unable to integrate with new innovative platforms; they also manage data badly and prevent the ability to cross-sell. Conversely, the IT infrastructure of case 3 and case 4 integrate with new technology relatively well. Although this problem is gradually changing in case 1 and case 2, in the past there has been a lack of overall comparison between companies on claims.

• **Competitive positioning and benefits of mobile commerce**

The results from the study reveal numerous similarities regarding the benefits derived from mobile commerce applications. All the four cases see improvements in company’s cost savings, market expansion and reach, operational efficiency and enhanced competitive advantages. However, the CRM systems in cases 3 and 4 where far more advanced, and enhanced their ability to provide much better personalized services to customers than those in case 1 and 2. A few of the respondents explained that their companies were in a process of providing online claims. As they explained, online claims settlement will bring substantial service improvements. Insurers could create substantial value by using the internet for online claims settlement as well as policy administration. As explained by the respondents mobile commerce methods bring a
substantial improvement to service quality. Some of the other benefits include:

- Continuous service round the clock;
- No restrictions imposed by national boarders;
- Faster response times; and
- Cross and up selling options.

6.3 CONCLUSIONS

The empirical findings show that services through mobile technology provide additional savings potential. Through the automation of business processes, consequently administration and claims settlement costs will be reduced. Respondents explain that the use of modern information technologies helps their company analyze data efficiently and in well secured systems. This finding is consistent with the theory of (SwissRe, 2000) that explains that better data analysis may improve risk selection, while the detection of insurance fraud and tighter control by partner companies can help to reduce claims costs.

The internet provides insurers with substantial cost advantage which are largely driven by reduced sales costs, lower customer service costs, and cheaper information-gathering about the customer. This is confirmed by the theory of Kalakota and Whinston (1997: 2) who believe that online business to consumer applications will eventually replace the traditional business model altogether.

Furthermore, the empirical findings show that services through mobile technology helped the insurance companies facilitate and establish profitable and long-term relationships with customers. Therefore, the deployment of mobile commerce functions contributes towards creating new customers and maintaining existing ones. This affirms the assertions made by Rowley (2004) who mentioned that relationship management acknowledges that a stable customer base is a core asset and business success is achieved through focus
on long-term relationships with customers. The findings also corroborate that the design and management of mobile applications is aimed at strengthening an enterprise’s competitive position by increasing customers’ loyalty. This finding verifies the theory of Xu & Walton (2005) that shows that most managers accept the view that gaining a new customer is more costly than retaining an existing customer.

Comparatively, the companies selected in this study perform better than their competitors in the life insurance market in terms of establishing long-term relationships. This can be attributed to its exceptional services through the various mobile channels.

However, due to the modern IT infrastructure in case 3 and case 4 the legacy systems are much more efficient compared to those in case 1 and case 2. This advantage does provide case 3 and case 4 with the opportunity to integrate their systems with new innovative platforms that provides them with better cross-selling capabilities.

While all the insurers possess the essential infrastructure for mobile commerce namely information technology and non-information technology tools, case 1 and case 2 are vastly stronger compared to case 3 and 4 in terms of non-information technology tools such as the capability to collect the customer feedbacks and complaints. This again can be due their large local presence and adopting a more localized approach. The above-mentioned findings are consistent with the research of Lang & Colgate (2003) who propose that both IT and non-IT mediums (i.e. human interaction) can be used as an approach towards relationship development.

Research by González, Quesada, Picado, & Eckelman (2004) claims that some customers appreciate having more control over their interactions with their service providers and they further argue that highly profitable customers demand higher levels of personalized service, but may be willing to pay for these services. This supports the above-mentioned findings of González et al. (2004).
Security and privacy are not as weak as some believe, but it is a problem due to the accessibility of the Internet from virtually anywhere. However, there are solutions to such hindrances, such as data encryption, firewalls and virus protection tools. Combined with a consistent and regular review of security policies these can be extremely effective in dealing with the problem. The above mentioned findings harmonize the theory of Thanh (2000) that explains that constrained bandwidth and computing power, memory limitations, battery life and various network configurations will all impact on the ability to provide adequate security for users without compromising the ease of use and speed.

A key source of competitive advantage has to emerge from regarding mobile network security as a serious issue. Although most wireless data currently provide adequate levels of encryption and security, the technology does not ensure transmission security in the network infrastructure (Lim & Siau, 2003: 11). As explained by the respondents, historically networks have often been the targets of attack, but with the advent of mobile commerce, this risk has been more threatening, as there is that much more to gain from penetrating a network and obtaining sensitive information.

The key will be for insurers to constantly remain updated with new security measures as it is unlikely that the risks will be able to be completely eradicated. The use of biological data for IT security commonly known as biometrics currently provides the highest level of security. This reflects the theory of Enders & Jelassi (2005: 608) who explain that biological data obtained for instance from finger prints and hand characteristics, voice, eyes or entire facial patterns provides maximum security in mobile networks.

6.4 IMPLICATIONS FOR LIFE INSURANCE MANAGEMENT

A multiple case study was used to explore how mobile commerce can be used to improve the services of life insurance post-sale activities. Twenty respondents in four life insurance companies were interviewed. The results show empirical support of mobile commerce methods in improving life insurance post-sale activities. The empirical findings lead to the development of
four propositions. The results of this study provide several theoretical and practical contributions for insurance managers. The first implication is that managers need to take into account both technology task fit and organizational viability when considering the adoption of mobile technology. As a result, the fit-viability framework has been validated and also its applicability in practice has been shown.

One possible impact of mobile insurance in the future will be the position whereby only a small number of companies will have a competitive advantage due to the speed of client services regardless of time and location.

Mobile commerce methods help life insurance companies to segment, profile, and gain a better knowledge from their customers on their activities. This enables them to have a one-on-one relationship with their customers and thus helps in the efficient delivery of personalized services. For example a niche scenario can be considered.

- **Niche scenario**
  As the number of customers surfing the internet increases everyday and the affluent and more knowledgeable customers display sophistication with this technology a niche market might develop in the future. This could help meet the complex requirements of such customers. Such requirements will include continuous personalized expert advice through Independent Financial Advisors (IFA) as well as self-education in the form of information available on the internet. As innovative products and quality of service become overriding issues, administration becomes complex and expensive. This could pave way for the emergence of consumer to consumer alliances.

Other implications include providing life insurers with the means to analyze contact points and evaluate their performance. It can also advise insurance management as to how to make strategic decisions on the above-mentioned issues. Moreover, it can also guide insurers on the growing and weak areas of
the business to help them take advance measures to allocate resources accordingly. This will thus help improve the business.

Mobile commerce plays an essential role in the life insurance market where the competition is particularly high but marginal revenues are considerably low. It is of great significance that the services provided by these insurers enable them to attract new customers and retain existing ones.

Given these facts, mobile technology can support insurance managers to scrutinize core customers and subsequently provide them with personalized services and products. It can also guide managers and field agents on how to enhance their relationships with clients by providing them with the appropriate products and services at the right time through the most appropriate channel. This will thus help these insurers to offer customers diverse and pertinent cross and up selling options.

6.5 IMPLICATIONS FOR FURTHER RESEARCH

As a result of the conclusions and a number of issues that emerged during the research process, some topics can be considered as areas to be explored in the future. This current research was based on life insurance post sale activities. Further research can be conducted on how mobile commerce can impact on the entire life insurance value chain.

Mobile technologies are changing the way that many organizations operate and do business. Mobile business-to-employee solutions, especially field force automation (FFA), could be an interesting area of study in the future. Further research can also be conducted to investigate the effect of mobile field force automation on the performance of the individual field staff.

Security for mobile computing systems due to the influence of constrained bandwidth and computing power, memory limitations and various network configurations can also be an interesting area for further studies considering the growth of mobile services.

Lastly, mobile sales force automation is growing in demand. According to the findings many insurers are continuously looking to bring mobility to their sales
forces. As younger agents and consumers demand more functionality via their handheld devices this is an interesting area for further studies. Mobile technology in claims is still growing and this will be an interesting area to explore.

6.6 RECOMMENDATIONS

The aim of this study was to investigate how mobile commerce can be used to improve the services of life insurance post sale activities. A multiple case study was used for this purpose consisting of four South-African life insurers. To accomplish this, a literature scrutiny was embarked upon to establish the theory of the concepts of electronic commerce, mobile commerce and the life insurance market. Secondly, an empirical study was conducted to record the views of industry expects about the subject. An evaluation of the results indicates that the majority of respondents (80 percent) at the selected companies were highly familiar with the concept of mobile commerce. Based on the conclusions of the study, the following recommendations can be made:

- Mass customization capabilities received low ratings from all the respondents. With the increasing advisory role of insurers and growth in the middle market this is a gap, considering that mobile technology has the ability to make valuable contributions. Insurers can thus close this gap to build a competitive advantage

- Mobile technology will enhance claim profiling with insurers. Insurance companies will become more and more proficient in categorizing claims using these technologies. These categories and their characteristics will be used for profiling claims and allow a one touch processing of simple claims and for allocating appropriately skilled adjusters for complex ones. This profiling will allow insurance organizations to be cognizant of potential liability limits. Such profiling will enable effective utilization of resources and will thereby reduce claim handling cost. One of the greatest challenges in claims management is for the claims department to have access to up to date and real-time information on each claim.
More and more claims systems could be integrated with document management.

- Insurers that deploy mobile commerce will be at the forefront of attracting the next generation of agents. A continuing shift in the demographics of both consumers and field agents will drive mobile service technology initiatives. A large number of older workers are reaching retirement age, and while many from that group were hesitant to adopt mobile technology, the younger workers set to replace them are not. Having grown up with cell phones and various mobile devices in their pockets, young employees are confident about the use of mobile technology. Since the bulk of future sales forces will come from the younger generations, insurers can create a niche using this group of employees. As such, it is increasingly important for insurers to offer the mobile capabilities that young insurance agents have grown accustomed to in their personal lives.

- Mobile technology can help insurers create a mobile Field Force Automation (FFA). This refers to mobile employees for example field agents remote from their base of operations, utilizing wireless technologies to perform their specific business tasks. In comparison to traditional methods, mobile FFA will offer a substantially increased scope for benefits particularly through real-time, location independent network connectivity. The goal will be to increase field agent’s productivity and help insurers achieve a greater return on their IT investments. The ability to send and receive information when and where field agents need it is a critical component for them to render effective services to their clientele.

- The use of mobile technologies can help insurers become more skilled with extracting information (data mining) out of data that gets accumulated in the operational databases and in data warehouses. Consequently leading to better data management. Insurers can also create a co-optive environment to share their claims data across with other organizations. Credit rating service providers will become more and more useful in the insurance marketplace. They can facilitate better risk
management and underwriting capabilities through data analytics. This can help insurers in controlling costs and in reducing the perpetration of fraud.

- The use of mobile technologies, for example Personal Digital Assistants (PDA) and handheld devices will become more popular in the insurance industry. These can enable accurate capturing of loss event information in real time and improve the efficiency of claims adjusters. Field claims staff and adjusters can use mobile technologies that allow them to upload and download information on to a central repository.

- **Interoperability and Standards**

  In the world of Internet economy, interaction and interdependence is necessary to ensure that an organization focuses on its core functions, and that it outsources its non-core functions. There is a need for automated interaction within the insurance industry and their agencies. Chapter three provided a discussion on how insurers will work with other service providers and organizations to deliver better service to its customers. In this context, the use of standards like acord discussed in chapter two can become more prevalent.

- **Emerging technology vision for the future**

  The emergence of the web services architecture can provide freedom for insurers from existing enterprise centric IT architectures. Companies will not have to acquire new assets to grow. This process is usually slow and more often very treacherous. Alternatively they will be able to rent them, as web based services from third parties. This can be made much easier by mobile technologies in terms of the mobility and the convenience inherent in its characteristics. The capital intensive model of owning IT infrastructure can be replaced by efficient leasing agreements.

  Contemporary insurance companies are anchoring technology, and the consumers are driving it. The paradigm shift from traditional business
strategies to mobile business strategies will become a higher priority for insurers in the near future. This complements the theory of Nokia (2000) that estimated there will be a billion mobile phone subscribers worldwide by 2005. This prediction was validated by the end of 2006 where there were one billion cell phone accounts worldwide. The rapid growth in mobile telephony provides a strong model for the adoption of uninterrupted mobile services. The transition from fixed to mobile telephony will almost certainly be followed by a similar transition from fixed to mobile computing services in the future.

- Security and privacy are not as weak as some believe, but it is a problem due to the accessibility of the Internet from virtually everywhere. However, there are solutions to such hindrances, such as data encryption, firewalls and virus protection tools. Combined with a consistent and regular review of security policies these can be extremely effective in dealing with the problem. A key source of competitive advantage can emerge for insurers who provide high levels of mobile network security for consumers.

The study shows that mobile commerce is a priority for the life insurance industry and consumers. The benefits are clear, but technological hurdles exist. As internet and telecommunication service provider’s endeavours to resolve some of the technical, business and application challenges in this service space, the expectation of important advances in the way businesses are conducted is eminent.
REFERENCE LIST


Dear Sir/Madam,

I am studying towards an MBA degree at the Nelson Mandela Metropolitan University (NMMU). As part of my studies, I am investigating on how to use mobile commerce to improve life insurance post-sale activities. Kindly assist me by spending 10 minutes in completing the attached questionnaire, and please return the completed questionnaire to the deliverer. The information you provide will be kept strictly confidential and as such the findings will be presented in a disguised format.

Thank you for your time and effort taken in completing this questionnaire.

Yours sincerely

..............................

REXFORD AFRIFA
MBA STUDENT
071 194 4738
ANNEXURE B: QUESTIONNAIRE

Section 1: Personal Profile

Please mark ‘x’ where applicable

Name of company: _______________________________________________

Department: ____________________________________________________

Current position: ________________________________________________

Field of study and Professional qualifications: _______________________

Professional work experience in insurance: _________________________

Age range:   24-34 □   35-45 □   46-55 □   56-65 □

SECTION 2: Views and current use of mobile commerce in the Life Insurance industry.

Please mark the appropriate response with an ‘X’

1. To what extent are you familiar with the concept and application of mobile commerce?
   Very high □   High □   Low □   Very-low □

2. To what extent will mobile commerce affect life insurance post sale activities?
   Very high □   High □   Low □   Very-low □

3. How does your company view mobile commerce?
   Opportunity □   Challenge □   Threat □   Not important □

Other opinions
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

125
4. To what extent are the following mobile commerce functions used by your company.

<table>
<thead>
<tr>
<th>Mobile commerce functions</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer relationship management capabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems integration capabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mobile messaging services</td>
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<tr>
<td>Field service automation</td>
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<tr>
<td>Mass customisation capabilities</td>
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<tr>
<td>Sales force automation</td>
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<tr>
<td>Mobile commerce applications are not important to our growth plans</td>
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</table>

Please provide a brief explanation for your ratings

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Considering your response to the synopsis above, how would you rate your overall level of satisfaction?

<table>
<thead>
<tr>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
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</thead>
<tbody>
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</table>
Section 3: Factors hindering mobile commerce applications in life insurance companies

1. To what extent will each of the following factors hinder the deployment of mobile commerce in your company?

<table>
<thead>
<tr>
<th>Major factors</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very Low</th>
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</thead>
<tbody>
<tr>
<td>Hardware and network infrastructure (Computers, internet, intranet and extranet support)</td>
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<tr>
<td>Lack of software packages, processes and systems.</td>
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<tr>
<td>Lack of technical expertise in m-commerce applications</td>
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<tr>
<td>Low and infrequent internet usage</td>
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<tr>
<td>Security concerns</td>
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<tr>
<td>Complexity of m-commerce technologies</td>
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<tr>
<td>Resistance to change</td>
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<tr>
<td>Internal conflicts and the fear of disintermediation by agents and brokers</td>
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<tr>
<td>Legal and regulatory concerns</td>
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<tr>
<td>Performance of supporting industries such as internet and telecom service providers.</td>
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<tr>
<td>Cost of broadband in South-Africa</td>
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<tr>
<td>Cumbersome and inefficient legacy systems.</td>
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</tbody>
</table>
1. What do you regard to be the key benefits of your company’s investment in mobile commerce?

<table>
<thead>
<tr>
<th>Key Benefits</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase sales agents work performance</td>
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<tr>
<td>Streamline office personnel procedures</td>
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<tr>
<td>Customer contact and service enhancement</td>
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<tr>
<td>Increased customer policy extension rates</td>
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<tr>
<td>Company’s cost savings</td>
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<tr>
<td>Market expansion flexibility, scale and reach</td>
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<tr>
<td>Contribution to overall company profit</td>
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<td></td>
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<tr>
<td>Increase overall company performance</td>
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<tr>
<td>Enhance competitive advantage</td>
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</table>

Other benefits to your company

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2) What do you think are the key benefits of mobile commerce to your customers?

<table>
<thead>
<tr>
<th>Key benefits</th>
<th>Very high</th>
<th>High</th>
<th>Low</th>
<th>Very low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings through improved transparencies and comparison with other services</td>
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<tr>
<td>Limitless access to company’s support services</td>
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<tr>
<td>Improved efficiency and transaction flow, visibility and control.</td>
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<tr>
<td>Tailored services for customers specific needs</td>
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<tr>
<td>Increased customer satisfaction levels</td>
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</tbody>
</table>

**Other benefits to customers**

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**Thank you for the information you have provided**