

**DESIGN AND IMPLEMENTATION OF AN ONLINE ORDER
PROCESSING SYSTEM**

A CASE OF STUDY: HIMA CEMENT COMPANY

BY

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DECLARATION

NABATEREGGA JOSEPHINE AND NABWIRE LILLIAN hereby declares that the work presented in this project report is our original work it has never been submitted to any institution of higher learning.

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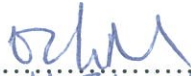
APPROVAL

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LIST OF ACRONYMS

TCP/IP	Transmission control protocol/Internet protocol
ISP	Internet protocol
EDI	Electronic data interchange
B2B	Business to Business
C2B	Customer to business
C2C	Customer to customer
B2C	Business to customer
C2G	Customer to government
U.P.S	Universal postal system
B.C	Before Christ
ERD	Entity relation diagram

ABSTRACT

The internet has turned the world into a global village. Meaning that business transactions can be carried out from any where and at any time provided that one is connected to the internet. However, in most third world countries Uganda inclusive, people are not fully exploiting the benefits of IT businesses still face problems of low customer-base limited to the areas where those businesses are located just because they have not exploited IT or they are just ridged to traditional ways of carrying out business. Hima cement factory happens to be one of those businesses that still suffer from the problem of IT-divide moreover falling on the lower side. It almost only carries out business with those that can physically access their different offices or the plant itself. And this has hindered its economic growth as some customers are geographically eliminated for fear to incur extra costs in traveling to the few districts where hima has offices. The high cost of operation that is incurred by customers, and Hima as accompany was key to the undertaking of this project. The project study focused on only the order making process which is a major business process. However, there is need of expanding on this so as to integrate it with other process like online payments among others. There is need for Hima management to sensitive its customers on the introduction this new service. User training is highly recommended to all the people on how to use the system. The system was developed using Php, mysql and dream weaver. Php provided a local host, sql was used to create a database, and dream weaver for creating web pages.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The internet is a public worldwide network of networks, connecting many small private networks. Computers on the internet use a common set of rules, called protocols, for communication. The primary protocol is called TCP/IP (transmission control protocol/internet protocol)

The internet originated in the 1960s, when the United States department of defense developed a network of military computers called ARPANET (advanced research projects agency networks). Quickly realizing the usefulness of such a network, researchers at colleges and universities soon began using it to share data. In 1980s the military portion of the early internet became a separate network called MILNET. Thousands of other government, academic, and business computer networks began connecting to the NSFnet. By the 1980s the term internet had become widely used to describe this huge worldwide “network of networks”. For businesses and individuals to connect to the internet, they must make arrangements to connect to a computer on the internet called a host. An internet service provider (ISP) provides access to a host computer. Large businesses, colleges, universities, and government institutions may already have a computer network that is part of the internet.

1.1 Background to the study

Hima factory is a company that will be established in the early 1950's. It is located in Kassese district in the western part of Uganda. It deals in products like lime, cement, culverts, concrete, and construction services. It employs over 300 workers from various parts of the world. It further operates various offices in various districts with its head office in Kampala. This has led to increased cost of operation in a way that the company incurs an extra cost in renting and payment of worker who attend to the various offices.

Business is usually carried out in away that, customers travel to one of the branch offices or to the factory itself to make inquiries and if they are satisfied with the terms of business, they go a head and make orders for the goods and services they want. This movement of customers has made some of them to loose money to robbers or even spend a lot of money on transport and accommodation while traveling to Hima offices. Most clients have found it tedious traveling hundreds or even thousands of miles trying to access Hima offices. This has made some customers to go in for other manufacturers in the same industry like Bamburi manufacturing company that already provides online order processing services. Hima had previously tried to respond to the problem of information accessibility by hosting a website but this has not helped much as it only provides information about the company but lacks an order processing module. It is because of the above that we feel an extension on the existing website should be made by embedding an online order processing module on the existing site.

1.2 Statement of the problem

The internet has turned the world into a global village. Meaning that business transactions can be carried out from any where and at any time provided that one is connected to the internet. However, in most third world countries Uganda inclusive, people have not fully exploited the benefits of IT. Hima Company happens to be one of those businesses that still suffer from the problem of IT-divide moreover falling on the side that has not fully exploited IT. The scope of its customers is only limited to those that can physically access their different office something that has hindered its economic growth as some customers are geographically eliminated for fear to incur extra costs in travel costs to Hima offices. It is therefore because of the high cost of operation that is incurred by customers, cost of operation that is met by Hima factory in operating branch offices in various districts that are used for booking purposes that a study was undertaken to help customers make orders via the internet.

1.3 General objective

The major purpose for the study was to develop a system that would allow customers to access information concerning Hima, order for goods via the internet without physically traveling to Hima factory.

1.3.1 Specific objective

1. To develop a system that allows customers order for goods
2. To provide customers with an alternative method for making orders without physically traveling to Hima offices.
3. To provide Hima with an alternative method for making its information about products available to its customers in away that can easily be shared
4. To provide a platform that enables Hima as a company to have a share in the benefits of using IT. By allowing customers to make orders 24 hours a day and seven days a week because the internet does not rest as human beings in offices do.

1.4 Scope

The study covered order processing at Hima Company. In particular, it evaluated the procedure that is followed in making an order for goods from Hima. Geographically, the study was made at Hima main branch offices in Kampala. The study covered the different modes of payment and delivery of goods from the factory in Kassese to the customer's premises. Finally based on the information collected, an order processing system was designed.

1.5 Significance of the study/justification

The study is of great importance in away that it allows customers to save money that they would spend on transport and accommodation while traveling to make orders from the different Hima branch offices. The system provides easy access to information about Hima products and services something that has enabled Hima to enjoy increased sales resulting from better customer service.

CHAPTER TWO

LITERATURE REVIEW

This chapter helps the reader to study, analyze, and make recommendations based on methodologies and techniques that have been explored by other researchers. We have looked at different types of websites that is to say static and dynamic websites, stating the advantages and disadvantages of each one of them.

2.1 Information technology

San Diego University (2009), defines Information technology as referring to all matters concerned with the further access of computer science and technology with the designs, development, installations and implementation of information systems and applications. That is to say the architecture of information technology is an intergraded frame work for acquiring and evolving IT to achieve strategic goals.

According to Laudon & Laudon (2002); in the 1st Canadian edition; an information system is a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making in an organization. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers to analyze problems, visualize complex subjects, and create new products. Information systems contain information about significant people, places, and things within the organization or the environment supporting it.

However, O'Leary (2004), states that information system refers to a system of persons, data records, and activities that process the data and information in an organization. It includes the organization's manual and automated processes. In a

narrow sense, the term information system refers to the specific application software that is used to store data records in a computer system and automates some of the information –processing activities of the organization.

2.2 E-commerce versus e-business

With the commercialization of the internet in the early 1990s, electronic commerce became e-commerce, the buzzword for buying and selling products and services on the internet. Today, many people use the term e-commerce in a broader sense, encompassing not only the buying and selling but also the delivery of information, providing customer service before and after the sale, collaborating with business partners, and enhancing productivity within organizations. Others prefer the term e-business to indicate the broader spectrum of business activities that can be conducted over the internet. Most people today use the term e-commerce in its broadest sense, interchangeably with e-business. However, according to Napier et al (2009) in their book *creating a winning e-business*, e-business is used to indicate the widest spectrum of business activity using internet technologies.

2.3 E-business and the new economy

According to Napier and et al (2009), the widest e-linking of individuals and businesses have created a new economic environment in which time and space are much less limiting factors, information is more important and accessible, traditional intermediaries are being replaced, and the consumer holds increasing amounts of power. The internet is a product of tremendous technological and economic changes driving the new economy, and increasingly, it is the medium of the new economy. Although, in the past, large companies were able to conduct their business electrically using EDI and private networks, the high costs associated with EDI prevented most businesses from using the technology. The internet has leveled the playing field by making it easier and cheaper for companies of all sizes to transact business and exchange information electrically.

According to Laudon and Laudon (2009), in this revolutionary economic environment, many of the limitations of space and time are disappearing. Businesses that once had geographically limited customer and competitor bases are finding that the whole world is now both customer and competitor. Businesses that previously conducted business activities during traditional hours can conduct those activities online 24 hours, 7 days a week, 365 days a year.

A popular independent Denver, Colorado, bookstore, the Tattered Cover with two brick-and-mortar locations, has been doing business successfully for over 20 years. The Tattered Cover has traditionally competed with local Denver bookstores. Now the Tattered Cover also competes with online bookstores such as Amazon.com and BarnesandNoble.com. To meet this new competition, the Tattered Cover added an internet bookstore. From its internet bookstore, the Tattered Cover sells books and gifts and provides special customer services around the clock, including scheduling for upcoming special events and personalized search requests for hard-to-find books.

It's therefore evident that, in the new economy, processing information is more powerful and cost-effective than moving physical products. Increasingly, the new economy is more of moving or sharing information (business deals) than the physical products themselves.

2.4 E-business advantages and disadvantages

Sellers are finding tremendous advantages in doing-business. They can increase sales and operations from local to world wide, improve internal efficiency and productivity, enhance customer service, and increase communication with both suppliers and customers.

2.4.1 Advantages of e-business

Table 2.1 showing advantage of e-business

Sellers	Buyers
Increased sales opportunity	Wider product availability
Decreased transaction costs	Customized and personalized information and buying options
Operate 24 hours a day, 7 days a week from one virtual market.	Shop 24 hours, 7 days a week
Reach narrow market segments that may be widely distributed geographically	Easy comparison shopping and one-stop shopping for business buyers
Access to global markets	Access to global markets
Increased speed and accuracy of information exchange	Quick delivery of digital products; quicker delivery of information
Bring multiple buyers and sellers together in one market place	Participate in auctions, reverse auctions, knowledge exchange

2.4.2 Disadvantages of e-business

Table 2.2 showing disadvantages of e-business

Sellers	buyers
Rapidly changing technology	Concern over transaction security and privacy
Insufficient telecommunication bandwidth	Lack of trust when dealing with unfamiliar sellers
Difficulty integrating existing systems with business software	Desire to touch and feel product before purchase
Problem of maintaining system security and reliability	Resistance to unfamiliar buying process, paperless transactions, and electronic money
Conflicted legal environment	
Shortage of skilled technical employees	

2.5 E-business models

A company's business model is the way in which it conducts business in order to generate revenue. In the present economy, companies are creating new business models and reinventing old models. Although there are many different ways to categorize e-business models, they can be broadly categorized as business-to-consumer (B2C), business-to business B2B, customer-to-business (C2B), consumer-to-consumer (C2C), and consumer-to-consumer (C2C), and consumer-to-business (C2B). Within these broad categories, there are a number of variations in the way the models are implemented.

2.5.1 Summary of business models

Table 2.3 showing 1 Summary of business models

Mode 1	Description	Examples
B2C	Sells products or services directly to consumers	Amazon.com, autobttel.com, the sunglass city, eDiets.com, pets.com
B2B	Sells products or services to other businesses or brings multiple buyers and sellers together in a central market place	Chendex, metalsite, vertilNet, SHOP2g ether, CATEx, houstoStreet.com
C2G	Business selling to local state, and federal agencies	Efederal, iGov.com
C2C	Consumer sells directly to other consumers	eBay, American boat Listing InfoRocket
C2B	Consumers name own price, which businesses accept or decline	

2.6 How the internet affects businesses today

Laudon & Laudon (2002), Explain this using an example of CISCO systems digital firm. . They argue that CISCO is close to becoming a digital firm, using internet technology to drive every aspect of its business. Customers, suppliers, distributors, and other business partners have access to portions of Cisco's private internal websites as well as its public website. Over 90% of Cisco's sales come via the internet. Three quarters of Cisco products are manufactured by contract suppliers, Cisco does not order from them from sales projections. Instead production is based on actual customer configure and price their systems and then to place the order. The is then routed directly to one of Cisco's manufactures, such as electronics' national in Singapore, which produce the products and ship

it directly to federal express and U.P.S so customers can track their shipments. Using this method, Cisco cut delivery time 70 percent while reducing its own inventory.

As Karen Burnett of Cisco's internet business solutions group put it "we don't touch the product at all". For those costumers who fill they do need handling when ordering, CISCO sales personnel gladly provide it .Customer service all occurs on Net. They add that the internet has given birth to the e-business and e-commerce. Where the business is conducted via the internet globally.

2.7 Types of web sites

2.7 .1 Static websites

According to wikepedia, the free encyclopedia last modified on 22nd/03/2010, at 08:15; a static website is one that never changes. This means that once the site is designed and uploaded to a location on the internet, it is considered complete and not updatable very often other than annual or semi-annual maintenance. The viewers see the same thing every time they visit the website.

While this may sound boring, static websites can be made more interesting through the use of slide shows, email forms, rollover buttons & programming such as Java script among others. It also supports objects like images.

Static websites have an advantage that they are slightly easier to design and their maintenance cost is slightly lower than that of dynamic websites.

They further occupy less space compared to dynamic website that may have huge databases running behind it.

2.7.2 Dynamic website

On dynamic websites, content is regenerated every time a user visits or reloads the site. The owner's automated programming can change the content constantly. This is done through the use of one or several data bases located on the web site hosting server.

Data base driven web sites are used for interactive web sites such as on line sales; message boards and sites that contain large amount of information. The data of web page is stored in the data base and is retrieved when the viewer clicks on especially programmed buttons or links.

Dynamic websites can be very sophisticated and provide viewers with a tremendous amount of information with just a few mouse clicks.

Based on the fact that, the major purpose is to enable customers and hima process orders online, a database driven website be developed to enable customers to submit their orders to Hima management via the internet.

2.8 Order fulfillment process

According to Braustein and peter (200) in their article “E-commerce to do battle for holiday dollars” in the women’s daily, august 14, 2, Order fulfillment, getting the ordered product into the hands of the customer is likely the least exiting and yet most critical-part of an e-business operations. Failure to handle the order fulfillment process well can result in unhappy customers who not only wont be back but will also tell other potential customers about their unhappy experience. Fulfillment issues include inventory management, order picking and packaging and shipping. Until 199, aspects of backend support in order processing and fulfillment were designed to meet the demands of the typical catalogue or direct-mail customer. With the direct-mail model, inventory planning is based on historic patterns of sales and purchasing, providing enough lead time to forecast needs, buy products and move them to the order fulfillment center, and fulfill customer orders. This process typically can include back orders, delayed shipping, and customer call-to-order ratios-tailing has changed the order processing and fulfillment model. Now both brick-and-click and pure-play e-business must operate in “internet time” which has a much shorter procurement cycle and which requires access to real-time information about inventory, order tracking, and customer service, Campenelli and Melissa(1999) .

Order picking selecting products from warehouse shelves and bins is the heart of fulfillment operations, and it affects both the order fulfillment and inventory replenishment processes. Cahners research reports that 38 percent of the fulfillment facilities they surveyed reported a mispick error costing more than \$100. 52 percent reported mispick errors costing \$60 per error. A traditional accuracy goal for picking operations in fulfillment centers has been 90 % or better. However, many fulfillment centers are now striving for 99% accuracy rate, because even 1% error rate- at \$100 per error is extremely expensive Napier et al (2001). For example a fulfillment with 50 mispicks per day at \$100 each can incur additional costs of \$5000 per day.

2.9 Shipping and delivery

Unless the product offered is information or another digital good such as downloadable software, e-businesses have to deliver their products to the customer through any of the available means of transport. For example; FedEx express, airborne express, DHL or any other company dealing in transit of goods depending on where the goods are supposed to go. No one shipping company will necessarily be an exclusive choice for an e-business. In fact many e-businesses allow their customers to choose the form of shipment that they desire. Also there can be benefits to using more than one shipping partner. If there is a problem with shipment through one shipping partner, it is easy to transfer the shipping process to another. One of the concerns relating to shipping is how the e-business charges the customers for shipping. There are several ways shipping can be charged for example; shipping included in price, flat rate i.e. fixed price added to all orders, weight i.e. based on the weight of goods, number of items i.e. based on the number of items, order total i.e. based on the percentage of the dollar value of the order, actual rate calculation i.e. shipping charge calculated from the actual shipping costs based on the weight of the order. Hakim and David (2000)

“warehouses: when to own, when to rent,” business 2.0. September 29.)
<http://www.business2.com/content/magazine/indepth/200/09/20131>.

2.10 Processing order returns

According to Forrester research, one out of every ten products sold online will be returned. An e-business must not only state a clear return policy on its web site, it must also have in place efficient return-item handling procedures. Many shipping companies have services that e-business can integrate into their websites to make returns convenient for customers by allowing customers to download or print postage-paid return labels directly from the web site. Some of these tools allow the e-business to arrange for a pickup of the returned item from the customer's location, and provide online return package tracking.

2.11 Traditional payment methods

Thousands of years ago nomadic hunter-gatherers lived in a world where there will be little need for money, and most valuable goods were perishable. Owning too much goods could be a liability for nomadic tribes who were constantly on the move looking for food and shelter. The advent of agricultural communities' around 8000 B.C led first to producing enough grain and agricultural products for the needs of individual families, and then surplus production. Trading systems developed as families exchanged their surplus grain or agricultural products or bartered them for other household needs. As the number of goods available grew and families became selective in satisfying their household needs, the barter system became increasingly inefficient. Adoption of monetary commodity or money that had value independent of other goods simplified the trading process. People have used all kinds of objects as money at different times and different places. For example, amber, beads, cowrie shells, drums, feathers, ivory, jade, leather, rice, stones, gems, gold and other precious metals, and other items have

been used through history. Because of this diversity, it is easier to define money by its functions than by its physical form.

Money functions as a unit of account, a common measure of value, a medium of exchange, and a means of payment.

2.12 Checks and money

A check is a written order on a bank or other financial institution to pay money belonging to the signer of the check to the check's presenter. A personal check is written on an individual's bank account. A cashier's check is a check drawn on the financial institution's own funds and signed by the financial institution's cashier. Checks came into use in the late 1800s and by the 1890s 90 percent of the value of payment transactions were being carried by check. Today payment by check remains one of the most popular offline payment methods.

A money order is an order for the payment of a specified amount of money, usually issued and payable at a bank or post office. Money orders are convenient for people who do not have bank accounts or for circumstances where checks are not accepted in payment.

2.13 Consumer credit, debit, and charge cards

A credit card is a rectangular piece of plastic used instead of cash or checks to pay for goods and services. Credit card issuers send their users a monthly statement of their credit card balance, generally paying interest on the unpaid balance. Oil companies followed retailers with their own credit cards. Next banks began issuing cards and forming associations to act as clearinghouses for their credit card transactions. These clearing houses are now consolidated into two associations for MasterCard and Visa card issuers.

A charge card is similar to a credit card and is used instead of cash or checks to pay for goods or services. However, users must pay their charge card balances in full upon receipt of the statement. In the 1950s, Diners Club, American Express,

and carte blanche launched charge cards that became known as T&E or travel and entertainment cards.

A debit card is also a rectangular piece of plastic used instead of cash or check to pay for goods and services. Banks issue debit cards in connection with a bank account and deduct all debit card transactions directly from the account.

Cash, coins, traditional paper checks and money orders are neither efficient nor safe payment methods for an e-business to employ. Instead there are several electronic payment methods that are more appropriate these include; Electronic credit, charge, and debit card payments

Although there are many different types of electronic payment methods for online consumers, the most common and currently the consumer-preferred method is the use of credit, debit, and charge cards. In order to accept these cards, an e-business must have a merchant account, payment-processing software, and procedure to protect its customers and itself against fraud. With merchant accounts, to accept a credit, debit, or charge card such as visa, MasterCard, discover, and American express, an e-business must first set up a merchant account at a financial institution. To do this, an e-business must apply for an account, much in the same way an individual applies for a personal credit card account, by supplying requested financial information. The kinds of information requested may vary by financial institution but will likely include;

1. The size of business
2. How long the e-business has been in business
3. The kind of products and services the e-business offers
4. The kinds of products and services the e-business offers
5. The anticipated average size of each transaction
6. The kind of cards accepted
7. The volume of anticipated transactions

2.14 Payment-processing software

In addition to securing a merchant account, an e-business must also have in place a process for getting card transactions authorized and getting the credit card transaction processed. A third party typically provides payment processing software for a monthly fee. Another alternative is for e-business to outsource payment processing to a third party provider. An e-business passes the card data to the third-party service provider for authorization and transaction processing. The e-business typically pays a monthly fee for the processing services.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter provides the methodology that was used to carry out the study. Among others it shows the population that was studied, how data was collected, strength and weaknesses of the existing system among others.

3.1 Study population

The study was carried out at Hima cement factory. Two employees from the department of marketing, two from top management, and two from transport department, two cashiers, and four sales managers/officials. The reasoning behind the selection above was to ensure that we get a balanced data from all parties that participate in the day to day business transactions at Hima cement factory. More information was collected from ten business men that deal in selling of cement. The intention of collecting data from these people was to get their views on how business can be transformed using the new proposed technology.

3.3 Data collection

Looking at the sample size of 22, it is a small number. Interviews were used to elicit data from respondents. Questionnaires were also used to collect data from the ten business men. This method was chosen because the ten customers were selected from various different places and to ensure that the cost of transport was kept low. Some document analysis was also used i.e. documented operational procedures for Hima Company was reviewed.

3.3.1 Primary data

This type of data was collected using interviews from Hima employees and from ten customers dealing in the selling of Hima cement.

3.3.2 Secondary data

This was collected from documents such as operational procedures, hima's customer records, the working of the current system, order papers, and from their web site.

3.4 Data collection tools used

3.4.1 Interviews

This is where the interviewer comes face to face with the interviewee. The interviewer asks a set of predefined questions as the interviewee answers. In using this method, it is the responsibility of the interviewer to either note down or record the interviewee's responses. When carrying out an interview, one needs to be careful so as not to be diverted from the aims of the interview. You also have to note that some respondents may not give information appropriately if they are not sure of the confidentiality of their information.

Advantages

1. They allow gathering of data from people who are knowledgeable about particular topic of interest.
2. They give high quality information compared to other elicitation techniques.
3. In cases where respondents can not understand questions, the researcher can always reframe those questions.

However, one should be mindful of the following limitations;

1. It is expensive when the sample size is large.
2. It requires a lot of time.
3. Finally it can be hard for some people who fear to express themselves.

3.4.2 Questionnaire

A questionnaire refers to a document that contains a set of questions that are aimed at collecting facts about a given area of interest. They were distributed to

respondents to complete on their own. This method was used to gather data from customers from different parts of Kampala.

Advantages

1. It is the most economical technique when the sample is large.
2. Respondents can be sure of anonymity and this can make them to answer genuinely.
3. It can also be used to validate data collected using other techniques.

Disadvantages

1. It prevents researchers from getting additional information like facial expression which are key to reading the feelings of respondents.
2. It denies the researcher a chance to probe using additional questions.
3. Designing a good question is not easy and requires experience.

3.4.3 Observation

The researcher visited hima offices on four different days anonymously trying to follow up the manual order making processes. Whitten et al (2001) presents the following as advantages and disadvantages of observation;

Advantages

1. Data gathered using this technique can show what is exactly practiced.
2. It is relatively is inexpensive

Disadvantages

1. People usually change the way they act when they are being observed.
2. It requires skilled personnel if observation has to be successful.
3. Tasks observed are subject to interruptions.

System development methodology

Whitten et al (2001), in their book systems analysis and design, divide the system development life cycle into six phases.

Planning; the project report was written and submitted for approval. The scope was agreed upon and a case of study decided upon.

Analysis; during this phase, the researcher went to the field to collect data. Data was collected from Hima main branch in Kampala and from ten customers around Kampala city. The data was thereafter analyzed and a specification for the new system was made. This included; user requirement, system requirements and hardware requirements.

Design; under this phase, a context diagram, a flow chart and ERD were used to design the new system.

Development

The system was developed using php and mysql. Dream weaver was used to create interfaces (web pages). Php which is a scripting language was used to create connections between the interfaces and the database. Lastly sql was used to create the database.

Testing

The system was tested to see if the interfaces linked to tables properly. Sample data was then used to test if the system worked as earlier on specified. Recommendations from the testing phase were serviced and the system retested.

Implementation

The fact that the system was undertaken for academic purpose, it has not been put into operation. However, to implement the system, there is need to get an internet service provider who will host it on behalf of Hima factory and the factory will only be required to pay a monthly service fee which depends on the size of the system and the ISP chosen.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND SYSTEM DESIGN

4.0 Introduction.

This chapter shows how data was collected, analyzed, the system functional requirements and how a system that implements those requirements was designed.

4.1 Data presentation

Data was collected from 22 people, 12 of whom were Hima employees. Two from the departments of marketing, management, transport, two cashiers and four sales personnel's. Ten whole sale customers were also interviewed. From the marketing department, information of interest concerned the effect that they expected the new system would contribute to their company. From management, information of interest was to find out if top management supported the development of the

3.4.3 Observation

The researcher visited hima offices on four different days anonymously trying to follow up the manual order making processes. Whitten et al (2001) presents the following as advantages and disadvantages of observation;

Advantages

1. Data gathered using this technique can show what is exactly practiced.
2. It is relatively is inexpensive

Disadvantages

1. People usually change the way they act when they are being observed.
2. It requires skilled personnel if observation has to be successful.
3. Tasks observed are subject to interruptions.

4.2 Systems Analysis

Responses from interviews, selected documents and questionnaires were collected. Errors were corrected. Accordingly, coding was very instrumental. Each item in the questionnaire was defined and entered into an excel spread sheet. The options on each item were assigned codes 1,2,3,4 ad 5 where;

1 represented very strongly disagree

2 represented disagree,

3 represented undecided,

4 represented agree, and

5 represented strongly agree.

The codes were then entered into the excel spread sheet

Graphs on the different data items were generated to make it easy for the researcher to analyze it.

4.2.1 Weaknesses of the existing system

1. The existing system wastes a lot of customers' money in terms of transport and accommodation.
2. Customers often loose their money into the hands of thieves on their way to the factory in kasese.

4.2.1 Functional requirements

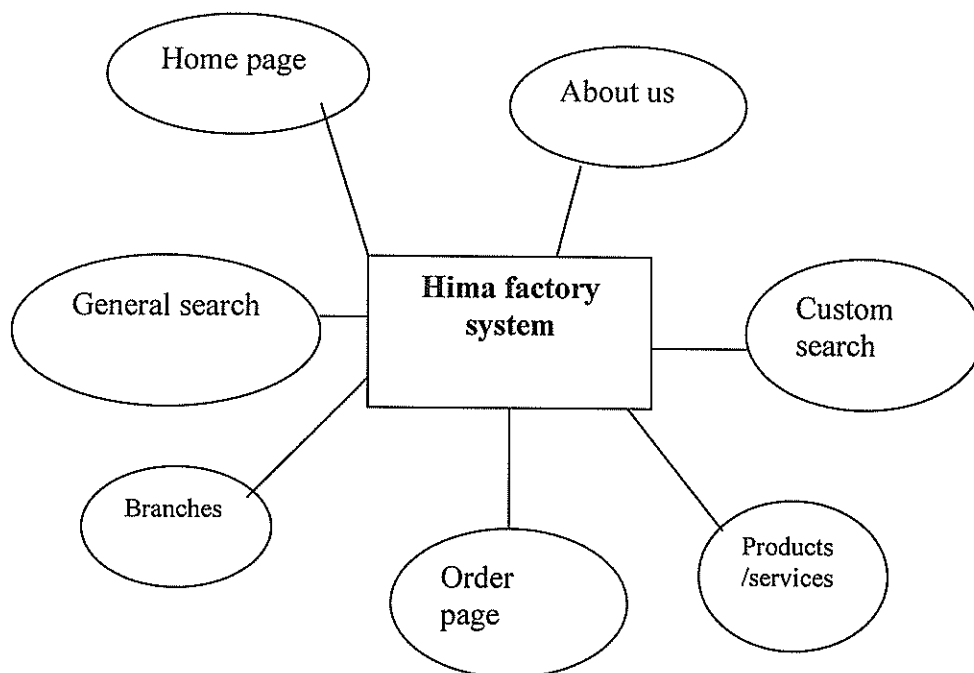
1. The new system should allow customers to order for goods 24 hours a day 7 days a week.
2. It should allow customers log on with private user names and passwords.
3. It should provide information on goods and services provided by hima factory.
4. It should allow management to view customers' orders and send emails to customers after their orders have been processed.
5. Customers should not be allowed to access other customers' data.

4.2.2 Non-functional requirements

1. It should be easy to use. Two hour with the system must be enough for a user with average computer skills to use it without making more than one error per every three transactions performed.
2. It should use simple and clear English understandable by a p.7 leaver.
3. Pages must have proper links to help users navigate from one page to another.
4. It should be developed using dream weaver.

4.3 Design of the new systems

Figure 4.1 Showing a context diagram of the system



4.3.1 Database design

The database contains the following tables

Orders (accno, items1-8, qty1-8, phone, email)

Accounts (accno(pk), fname, lname, telephone, type, address)

Admin (username, password)

4.3.2 Physical database design

Table structure for table `accounts`

```
CREATE TABLE `accounts` (  
  `accno` varchar(15) NOT NULL default "",  
  `fname` varchar(15) NOT NULL default "",  
  `lname` varchar(15) NOT NULL default "",  
  `telephone` varchar(15) NOT NULL default "",  
  `type` varchar(30) NOT NULL default "",  
  `address` varchar(50) NOT NULL default ""  
) ENGINE=MyISAM DEFAULT CHARSET=latin1;
```

Table structure for table `admin`

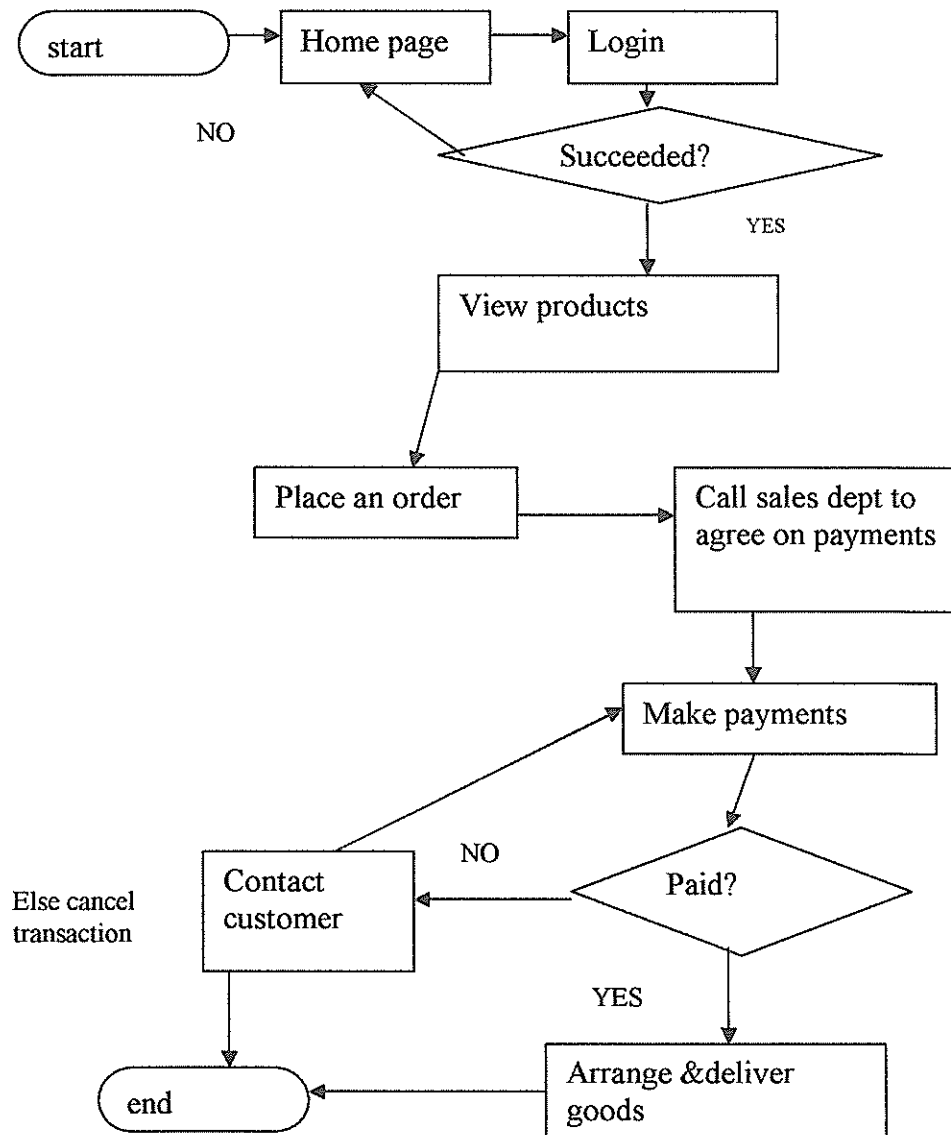
```
CREATE TABLE `admin` (  
  `username` varchar(15) NOT NULL default "",  
  `password` varchar(15) NOT NULL default "",  
  UNIQUE KEY `username` (`username`,`password`)  
)
```

Table structure for table `orders`

```
CREATE TABLE `orders` (  
  `accno` varchar(15) NOT NULL default "",  
  `item1` varchar(15) default NULL,  
  `qty1` varchar(15) default NULL,  
  `item2` varchar(15) default NULL,
```

```
`qty2` varchar(15) default NULL,  
`item3` varchar(15) default NULL,  
`qty3` varchar(15) default NULL,  
`item4` varchar(15) default NULL,  
`qty4` varchar(15) default NULL,  
`item5` varchar(15) default NULL,  
`qty5` varchar(15) default NULL,  
`item6` varchar(15) default NULL,  
`qty6` varchar(15) default NULL,  
`item7` varchar(15) default NULL,  
`qty7` varchar(15) default NULL,  
`item8` varchar(15) default NULL,  
`qty8` varchar(15) NOT NULL default "",  
`phone` varchar(15) default NULL,  
`email` varchar(20) default NULL  
)
```

Figure 4.2 Flow chart for placing an order



CHAPTER FIVE

SYSTEM IMPLEMENTATION

5.1 Introduction

This chapter is intended to show how programs were written, tested, and installed. It refers to the work that is actually done by programmers. It shows how the system was tested, implemented and how conversion was done.

5.2 Program testing

Program that fulfills the design of the system were tested. This was done by the programmer himself. The aim of testing was to ensure that the software achieves its intended goals. Testing was done after coding of the system. Figure 4.8 and figure 4.9 show results from testing using a customer with account numbers **ac002** and **ac001**.

5.3 Hardware acquisition

After the system had passed the testing phase the hardware necessary for the running of the complete system was secured. The software was then installed on the hardware and the two tested again to see if they worked properly. Issues that arose were solved and the system was tested again.

5.3.1 System implementation

The system was then delivered to it's intend clients for use. This was done by the researcher.

5.4 user interfaces.

This part of the chapter shows the various interfaces with the system.
Put interface with explanation.

Figure 5.1 showing the home page of the system

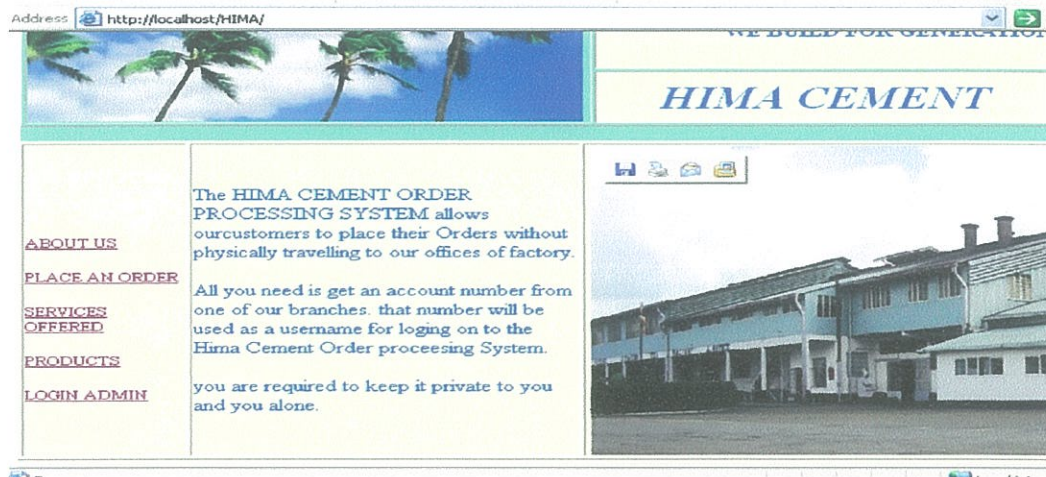


Figure 5.2 showing a staff login form to the system.

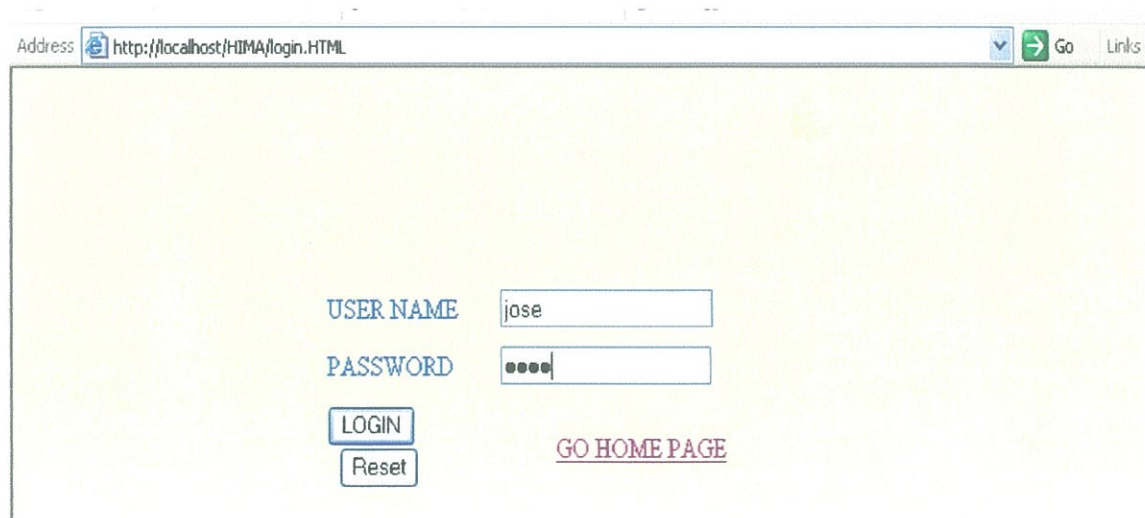


Figure 5.3 showing the system's administrative form/interface

Address <http://localhost/HIMA/admin.html> Go Links

USER NAME

PASSWORD

[ADD CUSTOMER](#)

[GO HOME PAGE](#)

[search for an individual order](#)

[view general report](#)

Figure 5.4 showing a customer form

The screenshot shows a web browser window with the address bar displaying `http://localhost/HIMA/adm/customer.html`. The page features a header with a palm tree image and the text "WE BUILD FOR GENERATION" and "HIMA CEMENT". On the left, there is a navigation menu with links: [HOME PAGE](#), [PLACE AN ORDER](#), [SERVICES OFFERED](#), [PRODUCTS](#), and [LOGIN ADMIN](#). The main content area is titled "ADD NEW CUSTOMER" and contains several input fields: "ACCOUNT NUMBER", "FIRST NAME", "LAST NAME", "TELEPHONE", "CUSTOMER TYPE", and "PHYSICAL ADDRESS". To the right of these fields, there is a note: "In the physical address specify country,city, district,town". At the bottom of the form, there are two buttons: "SUBMIT RECORD" and "RESET RECORD".

Figure 5.5 showing a search interface form

The screenshot shows a web browser window with the address bar displaying `http://localhost/HIMA/view_orders.htm`. The page features a header with a palm tree image and the text "WE BUILD FOR GENERATION" and "HIMA CEMENT". The main content area is a search interface with the text "ENTER CUSTOMER ACCOUNT NUMBER" and a text input field containing the value "ac002". Below the input field, there are two buttons: "SEARCH DETAILS" and "RESET".

Figure 5.6 Showing sample search results

Address http://localhost/HIMA/adm_search.php Go Links

CUSTOMER ORDERS

>

[Click To Go Back](#)

ACCNO	ITEM 1	QTY	ITEM 2QTY	ITEM 3	QTY	ITEM 4	QTY	ITEM 5	QTY	ITEM 6	QTY	ITEM 7
ac002	CEMENT GRADE A	12	CEMENT GRADE C	1	CONCRETE		CEMENT GRADE C	4	CONCRETE		CEMENT GRADE B	5

[Go to Home Page..](#)

Figure 5.7 showing all order in the system

Address <http://localhost/HIMA/report.php> Go Links

CUSTOMER ORDERS

>


[Click To Go Back](#)

ACCNO	ITEM 1	QTY	ITEM 2QTY	ITEM 3	QTY	ITEM 4	QTY	ITEM 5	QTY	ITEM 6	QTY	ITEM 7
ac002	CEMENT GRADE A	12	CEMENT GRADE C	1	CONCRETE		CEMENT GRADE C	4	CONCRETE		CEMENT GRADE B	5
ac001	CEMENT GRADE C	3	CEMENT GRADE B		CEMENT GRADE B	4	LIME		CONCRETE		CULVERT 0.5 M D	4

[Go to Home Page..](#)

Figure 5.8 showing a page with Hima products

Address <http://localhost/HIMA/products.html> Go



HIMA CEMENT

[ABOUT US](#)

[PLACE AN ORDER](#)

[SERVICES OFFERED](#)

[PRODUCTS](#)

[LOGIN ADMIN](#)

We offer products of different type and varying in quality

product Name	price
cement grade A	20000/= per bag (50kg)
cement grade B	18000/= per bag (50kg)
cement usual grade	15000/= per bag (50kg)
lime	15000/= per 50 kg
lime water	20000/=per 100Ls
culverts 1mtr diameter	12000/= @

Quantity	Discount by percent
10	1
50	2
1 tone	5
2 tones	10
10 tones	20
10 tones	25

The above table show discounts offered depending

Figure 5.9 showing the system's order form

[/localhost/HIMA/ORDER1.HTML](#) Go

PRODUCTS YOU NEED

YOUR HIMA ACC/NO

ITEM ONE

ITEM TWO

ITEM THREE

ITEM FOUR

ITEM FIVE

ITEM SIX

ITEM SEVEN

ITEM EIGHT

PHONE NUMBER

EMAIL

QUANTITY IN (TONES OR NUMBER)

CEMENT GRADE A	<input type="text"/>
CEMENT GRADE B	<input type="text"/>
CEMENT GRADE C	<input type="text"/>
LIME	<input type="text"/>
CONCRETE	<input type="text"/>
CULVERT 2M DIAMETER	<input type="text"/>
CULVERT 1 M DIAMETER	<input type="text"/>
CULVERT 0.5 M DIAMETER	<input type="text"/>

Local intranet

5.5 System conversion.

Whitten et al (2001) explains four system conversion techniques. System conversion is a way of changing from one system to another. Usually it refers to the change from the old/existing system to the newly designed system. I would suggest that **Parallel changeover be used. This is** where both systems are used co currently for some time until the user is convinced that the new system works well. Its major advantage is that it solves problems identified with the existing system and in case the new system breaks down, data on the existing system can be used to restore it back to normal. It should however be noted that the cost of maintaining both systems doubles.

CHAPTER SIX

DISCUSSION OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

6.1 Discussion of findings

It was found out that there's only one form of transport in operation currently and that is road transport. However, some water transport is used when transporting goods to Congo but this is at very minimal level because most people fear traveling on water. The transport department added that, air transport can also be used, provided that customers are ready to foot the high bills of using air transport. It was further discovered that Rwanda offers the biggest market amongst foreign customers. It actually consumes 45% of Hima's total exports i.e. (45 tone every year). And in the Ugandan market, construction companies ROKO and zimwe construction were leading buyers of Hima cement. Finally most customers prefer cash payments and check payments. No credit card payments have been registered since the company started. With telecom companies introduction of mobile money, payments can be made through mobile money services or directly to Hima factory assigned account numbers.

6.2 Recommendations

There is need for Hima Company to sensitive its customers about this new service. User training is highly recommended to all the people on how to use the system. The project study focused on only the order making process which is a major business process however there is need of expanding on this so as to integrate it with other process like online payments among other. However that will call for a more refined research, commitment from Hima Company socially

and financially. The system has limited functionality just because it was undertaken for only academic use/purpose.

6.3 Conclusion

Whichever project, be it development project, a software project, there is need for a feasibility analysis putting into consideration economical, and technical aspects. And proper management of the software development process so as to achieve the pre-set goals in; time and with in the pre-allocated budget. The new generation of computer literacy requires that information be availed to those who need it by the click of a mouse. The target users of this system are hima customers who can not afford wasting time money traveling to hima offices whenever they want to purchase goods from Hima Company. Much as the system comes in the picture of hima cement order processing systems, it was undertaken for only academic purposes. Lastly in case a company needs a system of this type, this prototype can be used as a good starting point. Few changes would have to be made to make it perform effectively.

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6.4 APPENDIX I; BUDGET

Item	Cost
Flash disk 1 GB	20000
Stationary and printing	100000
EasyPhp	100000
internet	50,000
Transport	100000
miscellaneous	50000
Total	420,000/=

APPENDIX II; WORK BREAKDOWN STRUCTURE

Activity	Time	Resource
Data collection	10 th /04/2011- 15 th /04/2011	Jose and li
Systems analysis	17 th /04/11 to 25 th /04/2011	Jose and li
System design	2 nd /05/2011 to 10 th /05/2011	Jose and li
Interface development	12/05/2011 to 15 th /05/2011	Jose and li
Database design	17 th /05/2011 to 19 th /05/2011	Jose and li
Interface to database linkage	21 st /05/2011 to 25 th /05/2011	Jose and li

APPENDIX III; QUESTIONNAIRE/INTERVIEW QUESTIONS

Preamble:

Dear respondent, am by the names of Josephine a student of information systems in second year first semester. It is a requirement that every student carries out a study aimed at solving a specific problem. It is upon this therefore that, I request you to cooperate and complete the following questions. All responses will be handled with utmost faith and confidentiality.

Part 1: Personal details

- 1) Name (optional).....
- 2) Gender: male [], female []
- 3) Profession:
- 4) Education Level: diploma [], bachelors degree [], masters [], PhD [] student []
- 5) Years of experience: 0-3[] 3-5[] 6-10[] 11-above []

Part 2: About Hima business

- 1) How is business conducted at Hima?

.....
.....

- 2) Out line the procedure followed when customers are making orders.

.....
.....

- 4) What are the weaknesses of the current order making system?

.....
.....

5) What are the strength of the existing system?

.....
.....

An online order processing system is one that allows a customer to access basic information at anytime provided that there is an internet connection.

Do you think the system explained above is suitable for Hima Company?

Yes [] no []

What would be the advantage (s) of using the above system?

.....
.....

What weakness do you think would come along with the above system?

.....
.....

THANK YOU AND MAY GOD BLESS YOU