Integrating ICT in Insurance Management: Design & Development of an Online Insurance System for E. Africa Insurance Company

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Abstract

The insurance industry appears to be lagging behind, as it faces strategic challenges in utilizing the web. The current manual insurance system at Insurance Company of East Africa has not been quite effective in creating awareness of insurance. The majority of insurers continue to build internet websites that are structured on a corporate orientation rather than customer needs. Customers are left on their own to figure out where they should find useful information.

In the E-insurance System we create awareness of information about insurance mode of operation, policies and benefits. Using qualitative research methods like interview and document review the research found the need to develop and E-insurance system to create awareness about insurance to the public. The qualitative research method led to the derivation of the requirements need to develop the E-insurance system. The E-insurance system was developed using PHP, WAMP and MySQL. The data is stored in the insurance database and access to specific information for example viewing of claims is done by authorized users through a secure web interface. The database was designed using MySQL. The user interfaces were designed using html, JavaScript, CSS, PHP and JQuery.

Keywords: Insurance, Management System

1. Introduction

The insurance industry has been biased with having little or no international focus. Barriers to entry such as taxation policies, legislation, government, distribution channels and culture have meant that even a pan-European industry has failed to flourish in the past. However, as economies of scale and comparative advantage lead to global cost efficiencies and also partly due to the trend towards a standard currency, companies have had more of a chance to be established thus facilitating globalization. The Internet directly facilitates this globalization and allows a global distribution potential to exist, although the other barriers still must be overcome. (Anshu, 2003). In the past, the domestic insurance market has had little regulatory control, with the emphasis being on freedom and openness. However to offer greater consumer protection and to follow in line with other countries, the insurance market has undergone more defense legislation and regulation to provide specific professional guidance (David and Russell, 2007). In addition, it allows regulatory change into place, emphasizing customer focus and reducing the boundaries between banking and insurance.

Since 2007 Uganda has had fire infernos registered in schools and markets mainly (Police Report, 2010). These calamities have seen loss of lives and property of students and traders. The report further indicates that very few people have had their businesses insured. The main reason was that few people are knowledgeable about insurance and its significance especially in incidences like fires and floods. They attribute this gap to lack of vigilance by government and insurance bodies to reach out to traders and schools and teach them. Quite challenging is if the mentioned parties have to reach every one. Never the less internet and telecommunication networks are in place but little attention has been accorded to their existence. Therefore the researcher asks as follows: i) how can insurers reach out to people and they perceive usefulness and ease of use of such interventions?

2. Background

The establishment of the Uganda Insurance Commission was a consequence of Government's adoption of the liberalization and privatization policies which ended its role of directly engaging in the provision of goods and services and taking on the role of supervisor or regulator. The commission is the supervisor and regulator of the insurance industry in Uganda. It was established under Section 14 of the Insurance Statute, 1996 (Statute) the

provisions of which came into effect on 4th April 1996. The main objective of the commission was to ensure effective administration, regulation and control of the business insurance in Uganda. If the clients are not aware of these regulations that control services they need, the government may be burdensome to effectively perform its cardinal role. Insurance provides compensation against loss or liability from specified events and circumstances that may occur or be discovered during a specified period. In exchange for payment from the policyholder (premium), an insurance enterprise agrees to pay the policyholder if specified events occur or are discovered. The insurance industry in the great lakes region today faces significant challenges because of lack of information awareness. Insurance information entails a number of policies which include home, automobile, life, fire, Bulgaria, third party liabilities, goods in Transit, travel, and all risk insurance for equipment or general insurance which significantly affect people and whose solution has been insurance. The existing insurance information system at Insurance Company of East Africa has not been quite effective in creating awareness about insurance policies and related benefits jeopardizing people's awareness. This may significantly affect capital bases of the insurance company, on one hand, and loss of property on the other hand which would otherwise be alienated, hence need to design a system to this effect. The study was guided by the following objectives as to: i) investigate characteristics of the existing system to solicit requirements for the proposed system; ii) design and implement the system; and iii) evaluate perception of users on the proposed system in terms of usefulness and ease of use.

3. Related Work

Perception of Usefulness and Ease of Use

(Margaret & Lynch, 1992; David and Russell, 2007) define insurance as the equitable transfer of the risk of a loss, from one entity to another in exchange for payment. An insurer is a company selling the insurance, an insured, or policyholder is the person or entity buying the insurance policy. This proposes a distributed multi-agent system for insurance companies where they and the customers are grouped together, exploiting user techniques as an approach to better match customers and insurance product offers. According to (Kunreuther, 1996) a risk that meets the ideal criteria for efficient insurance is an insurable risk.

Further it is observed that a person who is authorized to act on behalf of another to create a legal relationship with a third party is the insurance agent. (Sullivan, Arthur and Steven, 2003) describe assets as anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value. In the same context (John & Jordan, 2006) explain a claim as a request for payment for a loss under the terms of an insurance policy, it can be made by either a person insured by the policy or anybody. Mehr & Camack, (1976) argue that to indemnify means to make whole again, or to be reinstated to the position that one was in, to the extent possible, prior to the happening of a specified event or peril. There are generally two types of insurance contracts that seek to indemnify an insured that is an "indemnity" policy and a "pay on behalf" or "on behalf of" a policy.

Electronic insurance is not a long established practice among insurance companies which use information and communication technology to drive their day to day activities. In spite of the yet proven success, E-insurance has not been widely used due to costs and overhead difficulties involved. The surge of interest in electronic commerce (which enhances E-insurance) in the last few years has been triggered by pervasiveness of inexpensive computers and the wide spread of the internet (Chaudhury *et al*., 2002). E-commerce and the Internet are increasingly becoming one of the most important drivers of strategic change for business. It is easier to understand how to strengthen E-insurance markets by first understanding their development cycle. To perform well and grow, E-insurance markets require investment in infrastructure, which includes technical resources and capacity, as well as the existence of suitable economic, legal, and political environments. Although insurance has become a widely used financial service since first introduced in ancient Greece, its benefits have yet to reach much of the developing world.

Electronic Insurance Commerce explains that 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. Many new firms have ventured into the insurance industry for example banks, building societies, non-domestic insurance companies and privately owned companies. These new entrants largely form allegiances with the traditional market players. However, the major barrier to entry is distribution. The Internet overcomes this and by having low barriers to entry encourages new players into the insurance market. Moreover, as (Anshu, 2003) adds that it emphasizes the significance of being competent in branding and direct marketing. Online based Insurance can bring in various markets because of the extensive discovery done by a client each time they visit the website.

Security in e-insurance Companies are facing a series of ever more challenging problems in order to bring their plans to fruition, as commercial activity is becoming characterized by greater supply capacities, growing competition at a global level and constantly growing expectations and demand from customers (Sokratis *et al*.,

2002). They further observed that under this scenario electronic communications are very important, and Security is a critical factor, a matter of capital importance in the development of any initiative in the area of electronic commercial activities. Communications must provide a high level of accessibility (dead time in an e-Business environment does not only mean a loss of revenue but can also drive customers away), must be reliable (with high functionality and performance and an agile management and administration system) and must guarantee confidentiality. Fulfilling these requirements adequacy has become one of the main challenges facing companies in the so-called New Economy (Erat, 2002) using other models such as Electronic Data Interchange (EDI), Internet based systems break new ground in that they involve the customer's acceptance of specific applications in which the relationships established are much closer, due to the fact that in most cases they are two-way relationships. The key to e-insurance lies precisely in establishing a relationship of trust between the insurance agent and the client, just as there should be in traditional commercial transactions (Francisco, 2002). He adds that digital markets are evolving towards value added communities, focused on aggregating services for their members beyond those hitherto provided by a digital market, giving a wide ranging content that will help members to manage all their business processes by offering the widest range of services imaginable. This is without a doubt where the matter of security is of prime importance.

Privacy in the Net is an issue that is dedicated to a new area that is becoming increasingly important, that is Network Privacy. Privacy in general has been a great worry, because attacks can come from near or far. The introduction of data processing brought about a dramatic change in the situation, which came about without those affected being aware of it. Slowly people realized the existing situation and society as a whole started to react. The result of this has been the introduction of laws aimed at protecting personal data. Karimi, Somers, and Gupta (2001) cite a study suggesting that the focus of many companies has been to treat IT as a support function as opposed to a strategic marketing consideration. Insurance is usually considered as one of the financial services. When compared to bank services insurance seems to have different user frequency. Ahjos (1999) points out insurance issues such as risk analysis and insurance cover or claims applications, occur quite infrequently and with low frequency. Thus, there may be years with only one occurrence, and that is premium payment. Therefore, insurance deviates from bank services and in the case of Internet this means that consumers are not yet used to e-insurance, because there is inadequate information awareness. Inadequate information awareness is one of the reasons that hinder the consumers' engagement, which was the crucial point in developing the e-insurance system.

The study by (Maurice, 1998) reveals that most consumers are disappointed with e-insurance services because of lack of user friendliness. In addition, consumers argue that those services do not meet their expectations. Consumers would prefer Internet pages that are easy to use, contain adequate information of various insurance lines and let consumers themselves do their own purchase decisions. However, one third of the respondents are in principle willing to buy insurance from Internet, particularly motor, home, health and life insurance. Deloitte and Touche (2001b, 2001c) state that the insurance/financial services industry has been slow to embrace the internet relative to other industries. Those insurers that have tried to establish their E-Insurance business have largely been far from successful to date. Nevertheless, marketplace realities and the identified challenges suggest that insurance executives must seek ways to generate revenues and profits through new distribution channels and improvements in customer loyalty and marketing relationships, and find ways to attract and keep the most talented insurance professionals in order to survive today's turbulent business environment. It is doubtful that the Internet can be ignored in these efforts over the coming years.

4. Methodology

The study employed both qualitative and quantitative approaches. The former used interview guides to collect data about insurers' and traders' perceptions that guided solicitation of system requirements; while the latter utilized a standardized questionnaire to collect data about evaluation of usefulness and ease of use of the proposed system after development, rated at 4-point Likert's Scale. The questionnaire was construct validated (0.78) whereas there was no reliability test since it was standardized. The requirements included database and application designs. An E-Insurance system was designed according to the requirements determined by examining the user needs using prototyping method (i.e. meetings with the insurance providers and clients periodically to quickly solicit for requirements). A user navigating the site can have access to information about the different insurance policies offered by a click of *insurance products* button. In case the user gets interested, he /she may then be requested to create an account by signing up. On the created account, various activities can be carried out by the user (e.g. filling a claim, viewing the quotes and invoices, changing the password and so many others). On next visits, the registered clients are only required to login to their respective profiles or account to access detailed company information.
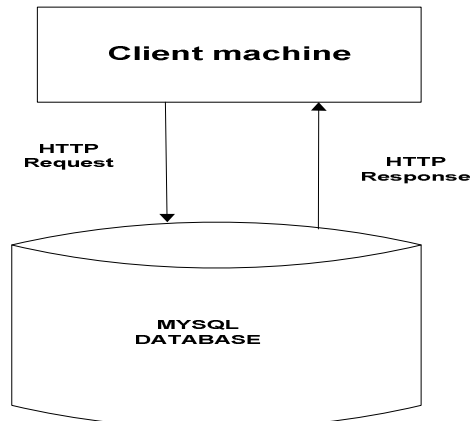
Figure 1*: Deployment of the System*

The system is web based and requires every user to login first before he/she can access database information hosted at the head offices.
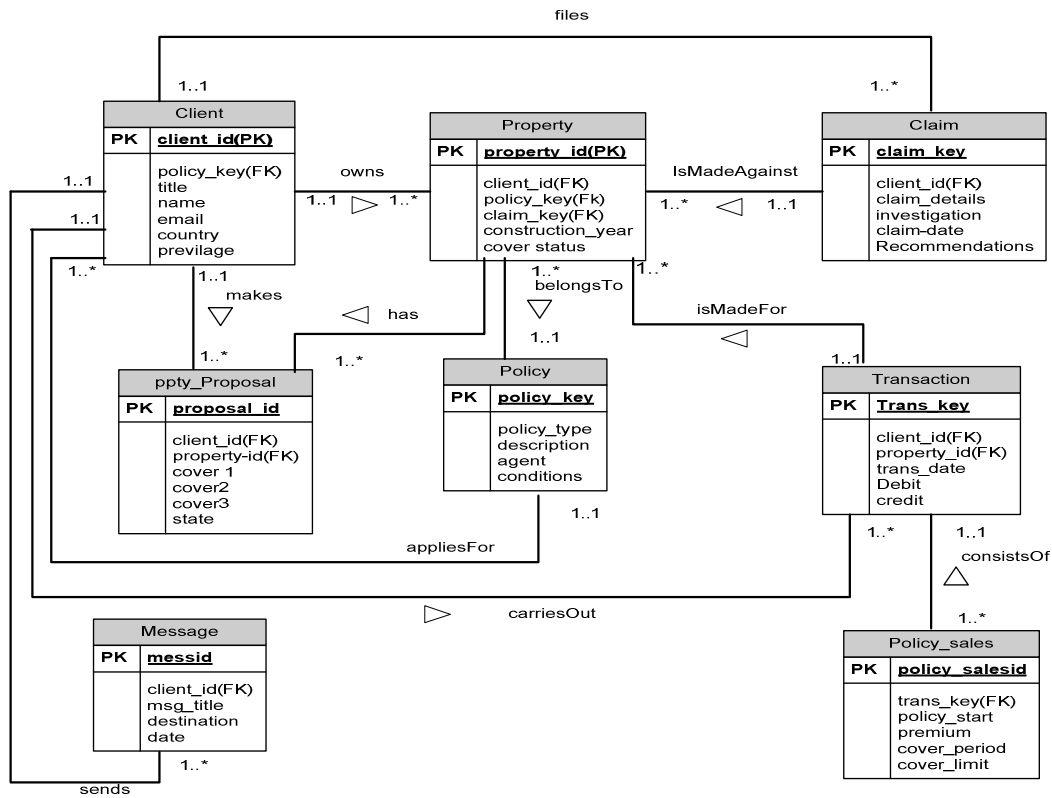

Figure 2: *Data Modeling with E-R Diagram*

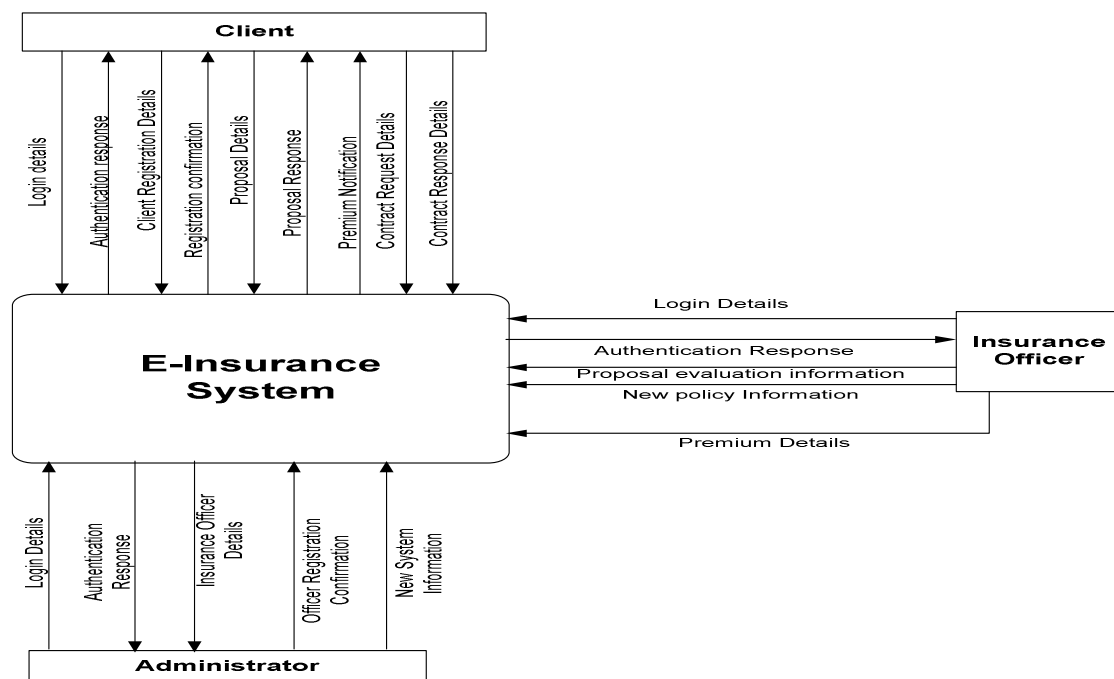*Figure 2 show the various entities involved in the system and their pertinent relationships and constraints.*

Figure 3: *Information Modeling*

Figure 3 provides an "outward" looking view from the system, shows system boundaries and interaction with external entities. It shows the other systems or groups of people that interact with the system and the main flows of data. It has data flows, external entities, one process (the system in focus), and has no data stores.
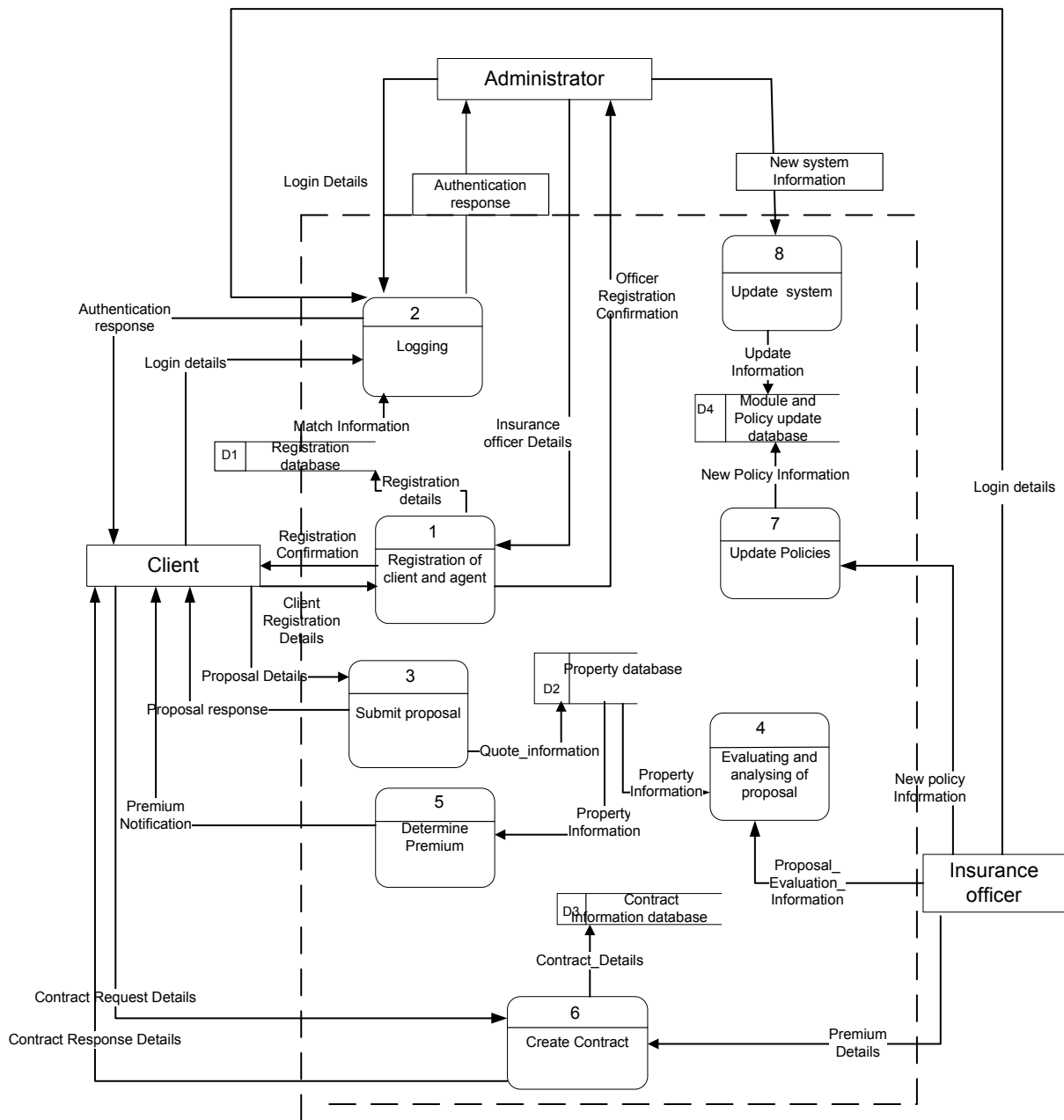
Figure 4*:* System Architecture

Figure 4 illustrates the system architecture of the proposed insurance system implying what every actor can perform and subsequent activities triggered.

5. Implementation

The system was implemented as a web based E-Insurance system allowing users to learn about insurance as well as trade in insurance. The E-insurance system was designed according to the requirements determined by examining the user needs based on literature, meetings with the insurance providers, and study of similar information systems. The E-Insurance solution now runs on an easy to use web interface which is provides by HTML and PHP with MySQL Database. JavaScript was used for interactivity and animation among other technologies. It was designed using a programming language called MySQL. MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. MySQL is a popular choice of database for use in web applications, and is a central component of the widely used in WAMP server.
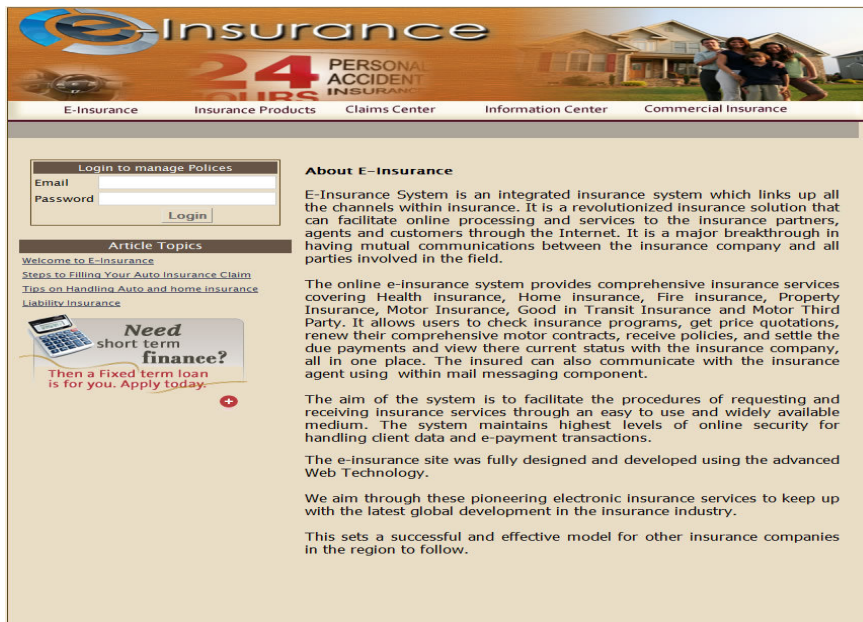
Figure 5*: Home page*

Clients can create an account with the company after reading the information
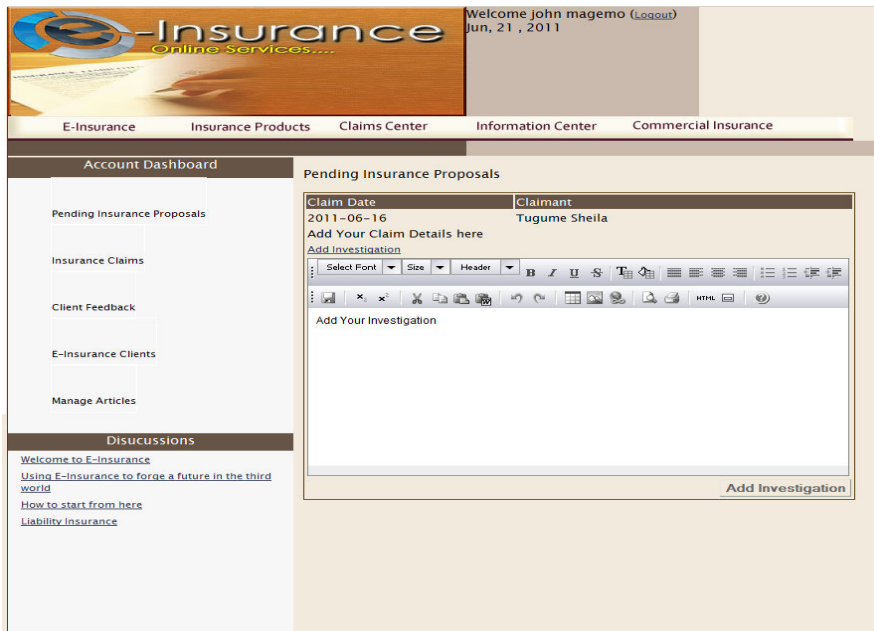

Figure 6*: Account Creation*

Figure 7*: Pending Insurance Proposals*

The page shows detailed information about home insurance. Other policies will have the same layout with information about the policies.

Figure 8: A validation Form

The screen shot in figure 8 shows a validation where the user or client was reminded to enter their details in order to create an account.

Figure 9: An *E-insurance Clients Page*

The page displays some of the registered clients for the insurance officer to view.
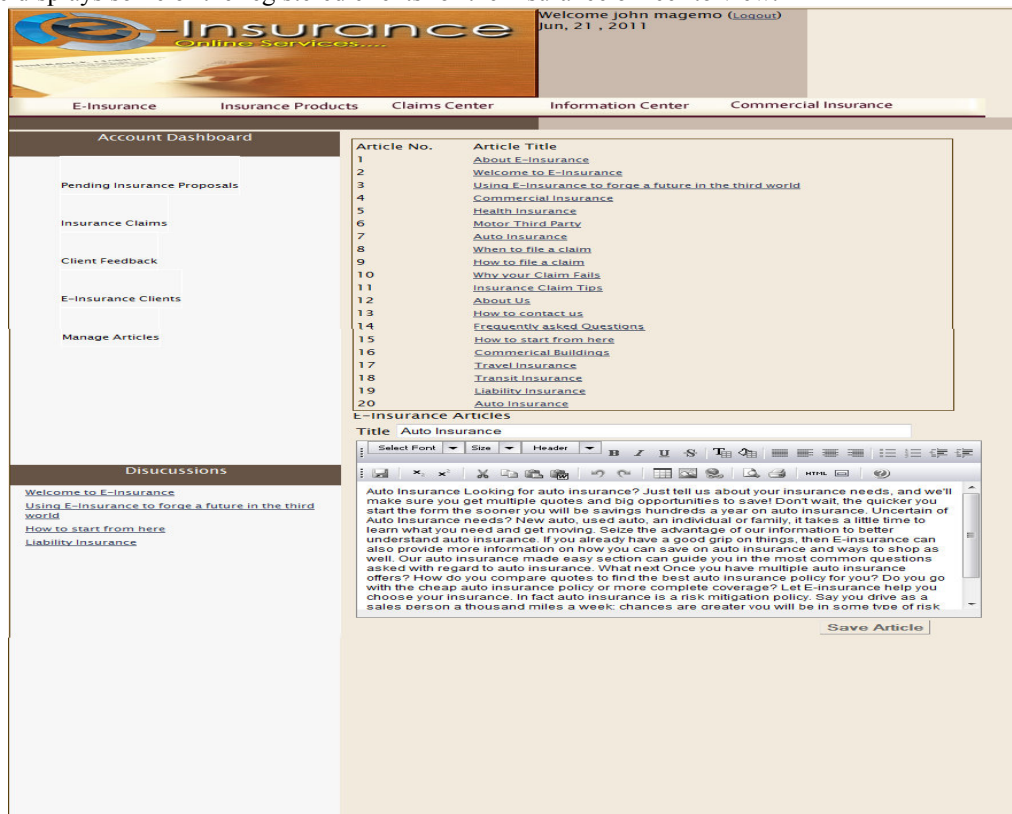
Figure 10: Officer Functionalists

6. Findings and Discussion

Results show that the designed system was evaluated as very satisfactory (3.75) and registered the following benefits: i) It is effective in terms of insurance marketing and client outreach. From online, clients are easily informed about new products, special offers, changes in policies and other information on how to apply for such policies from where they login (e.g. office, home etc); ii) It is cost effective since it requires less stationery as forms are filled online, less movement of agents or clients and time saving; iii) It is secure since insurance policies are set up basing on organizational policies set by controls within the system which means less errors and fraud; iv) The system has given the organization information confidentiality, integrity and availability. This

is achieved through the security setup, data input validation and the fact that it is accessed over the internet allows clients and agents to access information on the system from anywhere at the time of their convenience. The findings are supported by Chaudhury, Abhijit, kuilboer, Jean-Pierre (2002) who emphasizes that electronic insurance is not a long established practice among insurance companies which use information and communication technology to drive their day to day activities. Online based Insurance can bring in various markets because of the extensive discovery done by a client each time they visit the website. The study by Maurice, (1998) also revealed that most consumers get disappointed with e-insurance services because of lacking user friendliness. In addition, consumers argue that those services do not meet their expectations. Consumers would prefer Internet pages that are easy to use, contain adequate information of various insurance lines and let consumers themselves do their own purchase decisions. However, one third of the respondents are in principle willing to buy insurance from Internet, particularly motor, home, health and life insurance.

7. Conclusion

The researchers developed an internet based insurance system. The system developed provides detailed information to any clients who may want to undertake insurance. The system allows users to view detailed information about any policies they may be interested in, a client can select/propose /register for any insurance policy, client can request the insurance company to take up insurance contract with the client, The company can as well upload any Insurance topics to be discussed by the public through the discussion forum. However a friendly user interface has been used to ease use and navigation purposes and control of user errors as well as minimizing user data entry errors through script validation and use of list options from where the user can select. In nut shell the purpose of E-insurance system was to make adequate awareness about the mode of operation of E-insurance and how information technology can be used to enable information delivery and awareness to the public in Insurance Company of East Africa. The research revealed that integrated awareness about various policies could provide great improvements to manual and paper based processes in use for example home, motor, time, theft, and burglary and regulation in the country. To achieve this, an integrated based prototype was designed to avail detailed information about E-insurance in the country. The researcher recommends further work to be done in order to improve on the functionality of the system designed. Any further improvements should be done in the areas recognized below: i) More research about calculation of premiums; ii) Having an integrated system that spans all the insurance policies especially that most designed insurance systems are independent systems; and iii) Incorporating an SMS module so that clients are notified about their undertaken policies, payment of insurance covers.

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