IMPACT OF TECHNOLOGY ON EFFICIENCY OF HEALTH INSURANCE MANAGEMENT IN DELTA STATE, NIGERIA.

BY

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ABSTRACT

The purpose of this study was to explore the impact of technology on efficiency in the management of health insurance claims. The research and discussions were guided by the specific objectives of the study which are: the capacity of health insurance companies to adopt technology in claims management; resource benefits resulting from implementing technology in claims management; the adoption and implementation strategies of implementing technology in claims management. A thematic analysis approach was employed in analyzing the qualitative data obtained from the field through in-depth interviews between January 2017 and August 2023. A total of fifteen (15) participants were purposively selected from three (3) health insurance organizations in Delta state, Nigeria, using structured interview guide. Result revealed that adopting and implementing technology in the claims management process facilitates timely processing and reimbursement of claims by health insurance companies and reduction of administrative and medical cost. Organizational scope, knowledge and awareness of available advanced technology for claims management as well as financial capacity of the health insurance organizations are key enablers for the adoption of technology for claims management. Participatory decision-making and regular training of staff were also key factors in the implementation of advanced technology in the claims management process. Among the recommendations from this study is the need for the National Health Insurance Act (NHIA) to take measures that will boost national adoption of technology in claim processing by health insurance companies in view of the numerous benefits.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Health insurance is the type of insurance founded against the risk of incurring medical expenses among individuals. It is a method of pooling the health risks and costs of an exposure unit with a view towards predictability.

Awosika, (2005) opined that health insurance makes it possible to substitute a small but certain cost (premium) for a large but uncertain loss (claim) under an arrangement in which the healthy majority compensates for the risks and costs of the unfortunate ill minority. Pooling of health risk is a fixture of every society and takes many forms. It was even practiced in our traditional societies. The overall contributions are placed into a pool of funds from which payment is made.

The underlining principle is such that a large number of persons contribute small amount into a common purse from which the cost occurrence of uncertain events (illness), hitherto defined, are offset for the minority of persons who may need it. It is based on the probability that all contributors will not require funding from the pool at same time and with the hope that only a minority will consume a fraction of the fund within a defined period of time, usually, annually.

A claim on an insurance policy is a formal request to an insurance company for payment based on the terms specified in the insurance policy. Cooper (1997) defined claims as demand on an insurance scheme to fulfill its portion of the promise.

The claim process begins with patient's identification at the hospital, (usually by the front desk officers or receptionist, using specified means of identification such as the insurance

company's identification card), through to diagnosis and treatment of illness, injury or disease condition until the patient's exit from the hospital or facility. All activities performed on the patient from identification, administration of treatment and dispensing of drugs are recorded or charged to the patient's account accordingly.

All information and charges for billing based on the requirements of the insurance company and as agreed in tariffs or rates are then processed, which generally has specified rules for reimbursement. During the billing process, if the hospital falls short of defined agreement or requirement with the insurance company, payment may be denied.

Health insurance claims management process is complex and involves the input of several stakeholders, including healthcare providers, insurance companies, and patients. It is the bedrock of the tripartite arrangement between insurance companies, healthcare providers and beneficiaries of health insurance scheme in the healthcare industry.

A key contributor to high health insurance costs is the processing of claims. This ranges from overbilling of medicines, inappropriate application of tariffs, duplication of claims, lack of evidence on diagnosis to back claims, absence of a link between treatment and diagnosis, treatment outside the defined benefits package, irrational prescription of medicines, inflation of the quantities of medicine supplied to subscribers, provision of services above accreditation level and overbilling of medicines (International Labor Organization, (ILO), 2014; Onwujekwe et al, 2012).

For many health insurance organizations and providers, previously crafted strategies for claims processing and adjudication must be reexamined and, in some cases, a total overhaul is needed if they are to remain in the market. The bureaucratic nature of claims reimbursement

processes to providers results in an uncompensated claim due to claim errors and other administrative reasons (Carroll, 2020)

Several technologies have been developed to enhance claims management in Nigeria and over the world. Technologically advanced health insurance claims processing system will help to automate and optimize the process as well as provide valuable insight into claims data collection for better decision making. Health insurers can easily and quickly collect claims from their healthcare providers (HCPs). It streamlines the claims process, reducing the time and effort needed to process, approve and settle claims. This means faster payments for the healthcare providers and a more efficient claims collection process for the insurance company.

This system helps to eliminate manual claims processing, improve claims turnaround time, enable transparency in the system, provides seamless integration, enhances timely payment of providers, and ensures cost saving from automation.

The health insurance industry in Nigeria is increasingly and rapidly expanding resulting in increased investment in the sector. This has also led to the increase in the number of health facilities in the scheme and consequently an increase in the volume of claims submitted to insurers by providers. This has in turn brought about several challenges in claims management such error in processing, overbilling, fraud and high overall expenditure in the claims processing process.

Using technology to manage the claims process have the potential to improve efficiency in claims management and evaluation. The paper-based process for managing claims still in use by many health insurance companies (HMOs) is prone to errors which creates an atmosphere for misunderstanding and lack of trust among stakeholders.

National Health Insurance Scheme

"A national health insurance scheme was first proposed in Nigeria in 1962 under a bill that was introduced to Parliament in the same year by then Federal Minister of Health, Dr. M. A. Majekodunmi. The scheme was to commence in Lagos area and provide health services through salaried doctors (Awosika, 2005)

According to Awosika (2005), the main opposition to the bill at the time was from the Nigeria Medical Association whose membership was influenced by Private medical practitioners in Lagos (the Bill proposed salaried doctors for delivery). The NHIS idea was resurrected again in 1988 by another Minister, Prof. Ransome-Kuti. This effort resulted in the Eronini Report (1989) on the NHIS which formed the template of the present-day scheme. The scheme had been bedeviled with lack of political will by the successive governments and inter-professional rivalry within the ranks of stakeholders. However concrete steps were taken with the passage of Decree 35 (National Health Insurance Scheme) of 1999 by the government of then General Sanni Abacha and the first launch of the scheme took place.

This was followed by a period characterized by administrative fumbling and pilot schemes that were ill advised and not backed by legislation. However, the private sector wherein most of the activity in health takes place took the bull by the horn and launched private health insurance schemes in 1998.

The pressure from the private sector and other stakeholders along with the enthusiasm of the incumbent Federal Minister of Health, Prof. Eyitayo Lambo led to the present new-launch of the formal public sector programme of the NHIS in June 2005.

The present day NHIS shall be a regulatory body providing oversight functions to the organs that will be involved in direct delivery of services to members i.e., HMOs and Providers. The NHIS shall have several programs aimed at different segments of society. The health care

providers under the scheme shall be a mix of public and private facilities in the spirit of Public/Private partnership. The members shall be free to choose to obtain services at any one of such registered health care providers.

In other to give the scheme a public-private partnership outlook, the NHIS was also empowered by law to encourage and accredit privately owned health insurance companies under the Health Maintenance Organization (HMO) arrangement. HMO stands for Health Management Organizations in Nigeria. They serve as a middleman between the hospital and clients seeking healthcare services. These HMOs where to operate under the direct regulation of the National Health Insurance Commission.

By this, the founding fathers of the scheme believed that the social system of the country is marred with inadequacies, without checks and balances. Based on that, policy makers in health suggested a system of health insurance with HMOs participating as agents of the NHIS to purchase health services from public and private providers. HMOs are private sector driven and are expected to close leakages that might be arising from poor management by the public sector (International Labour Organisation (ILO) 2014; Onwujekwe et al, 2012)

In the researchers view, health insurance scheme in Nigeria is driven by a tripartite arrangement between the insurance company (HMO), insured or policy holder and providers, in which interests and responsibilities are jointly shared. Each party has his roles to play to make the scheme work and if each party honestly and diligently applies itself to discharging its responsibilities to the scheme.

According to Awosika (2005), the transaction begins when the insured comes to the insurer to pay a premium in order to cover a loss that might occur and the insurer promises to indemnify the insured having collected the premium. The insured receives a contract, called the

insurance policy, with the details of the conditions and circumstances under which the insured will be financially compensated.

The insurance company are expected to function based on health insurance principles of Insurable interest, utmost good faith, indemnity, and underwriting. A departure from any these principles will lead to bridge of trust and market failure. The business aim of the insurance company is to collect as much premiums as possible and strive to keep claims payout as low as possible.

The benefit for the medical provider under this arrangement include:

i. Long-term investment in better funding practice
ii. Increase in the number of lives under the insurance company leads to potential increase in the number of hospital visits
iii. Consistent and improved cash flow
iv. Pre-payment affords better planning
v. Restructuring of practice for levels of care"

1.2 Statement of Problem

In Nigeria, effective claim adjudication is very important to health insurance organization as it can hardly survive excessive, avoidable and unjust payout. Roff (2004) said "to all intents and purposes, the claim department can be seen as the shop window of the insurance company. It does not matter how cheap an insurance company's premium is, or how efficiently they conduct their underwriting administration if a claim is not properly and fairly dealt with. This is where an insurer will be judged".

Manual intervention in the claim repricing and/or adjudication process can be tedious and extraordinarily time consuming, costly and require significant resource allocation. Insurers and

providers loose significant revenue to fraudulent, wasteful and abusive practices during a claiming process. “Therefore, the need for an innovative technology such as the development of end-to-end claims intelligence product suite for health insurers to drive up insurance inclusion, speed-up claims adjudication and reduce fraud, waste and abuse in claims management operations cannot be overemphasized.

According to Dhar and Sharma (2019), successful claim settlement shall strive to achieve;

1. High customer satisfaction.
2. Sufficient premium growth.
3. Low incurred claim ratio.
4. Profitable Underwriting.
5. Detection and prevention of fraud.
6. Management of adverse selection & moral hazard by clients.
7. Avoidance of litigation & decreasing number of claim errors.

Maximization of benefit by the health insurance company, among other factors is based on effective and efficient claim management. According to Bates & Atkins (2007) and SAS (2012), claim expenses constitute the largest proportion of an insurer’s expenses and hence there is a need for insurers to take their claim handling activities seriously.

In view of the potential benefits of adopting technology in this area, this research aims at evaluating the impact of technology on efficiency in the management of health insurance claims with reference to state run insurance scheme and privately run health maintenance organizations in Nigeria, as well as the challenges and limitations of adopting such technological solutions. It is also the aim of this research to recommend best practices for adoption and implementation.

1.3: Objective of the Study

The main objective of this study is to evaluate the impact of technology on efficiency in the management of health insurance claims

The specific objectives are:

i. to assess the capacity of health insurance companies to adopt technology in the management of health insurance claims
ii. to explore resource saving benefits (financial and time) from implementing technology in the management of health insurance claims
iii. to explore adoption strategies employed by health insurance companies in implementing technology in management of claims

1.4 Research Questions

Three (3) research questions were formulated thus:

i. What is the capacity of health insurance companies to adopt technology in the management of health insurance claims in Nigeria?
ii. What is the resource-saving (finance and time) benefit of implementing technology in the management of health insurance claims in Nigeria?
iii. What are the adoption strategies employed by health insurance companies in implementing technology in the management of claims in Nigeria?

1.5 Significance of the Study

The findings from this work will be beneficial to the National Health Insurance Scheme, insurance companies as it will provide information on the impact of the adoption and deployment of modern technology in the claims management process by evaluating the impact of technology on efficiency in the management of health insurance claims. It will provide the link between the

use of technology and timeliness and accuracy of processing and managing health insurance claims by the health insurance companies

The findings from this work will be beneficial to training institutions which seek to train officers responsible for claims processing in health insurance companies. The study will also provide data to both the public and private sector in improving and developing technology for claims management in health insurance.

1.6 Scope and Limitations of the Study

The study is limited to Delta state and covers one state owned insurance agency and two privately owned insurance company (HMO). These companies and agency enjoy the highest patronage from insurance beneficiaries due to their strategic location in the state and their strong participation in the state's run insurance program and thus record high number of enrollees under insurance in the state. The study covers from 1st January 2017 when the Delta state contributory health commission was established till July 2023. the study shall use in-depth interviews and semi-structured questionnaire to obtain data.

The limitation of this study is in the difficulty to collect data from some providers, insurance and information technology companies who were reluctant to allow the researcher and his team to conduct study within their facilities due to the fear of divulging information about their business process. However, the team did everything possible to assure them of the confidentiality of whatever information obtained.

Another limitation was the difficulty in scheduling participants for interviews because of their busy work schedules especially nurses and claims officers. However, the researcher and his team made multiple spirited efforts to secure appointment to conduct in-depth interview based on their availability.

Finally, the issue of generalizability is a limitation as the study was conducted in Delta state only. However, the information from this body of work can help direct further studies.

1.7 Operational Definition of Terms

Authorization: This term refers to when a patient's health insurance plan requires them to get permission from their insurance providers before receiving certain healthcare services.

Beneficiary: The beneficiary is the person who receives benefits and/or coverage under a healthcare plan. The beneficiary of an insurance plan may not be the person paying for the plan, as is the case for dependents covered under their parents or guardian plans.

Clean Claim: This refers to a medical claim filed with a health insurance company that is free of errors and processed on time.

Coding: Is the process of translating a doctor's documentation about a patient's medical condition and health services rendered into medical codes that are then plugged into a claim for processing with an insurance company.

Demographics: The patient's information required for filing a claim, such as age, sex, address, and family information. An insurance company may deny a claim if it contains inaccurate demographics.

Electronic Claim: A claim sent electronically to an insurance carrier from a provider's billing software. Electronic Medical Record is digitized medical record for a patient managed by a provider onsite. EMRs may also be referred to as electronic health records (EHRs).

Fee for Service: This refers to a type of health insurance wherein the provider is paid for every service they perform.

Fraud: Providers, patients, or insurance companies may be found fraudulent if they are deliberately achieving their ends through misrepresentation, dishonesty, and general illegal activity.

Healthcare Insurance: This is insurance offered to a group or an individual to cover costs associated with medical care and treatment.

Health Maintenance Organization (HMO): This refers to the insurance company that provides health services for a fixed annual fee.

Healthcare Provider: These are the entities that offer healthcare services to patients, including hospitals, and private clinics, and other healthcare facilities.

Inpatient: Care occurs when a person has a stay at a healthcare facility for more than 24 hours.

Intensive Care: Intensive care is the unit of a hospital reserved for patients that need immediate treatment and close monitoring by healthcare professionals for serious illnesses, conditions, and injuries.

Medical Coder: A medical coder is responsible for assigning various medical codes to services and healthcare plans described by a doctor on a patient's claims.

Operational factors: Refers to factors related to the working of a system

Outpatient: This term refers to healthcare treatment that doesn't require an overnight hospital stay, including a routine visit to a primary care doctor or a non-invasive surgery.

Premium: The sum a person pays to an insurance Fund on a regular (usually monthly or yearly) basis to receive health insurance.

Process Evaluation: describes a program's services, activities, policies, and procedures. It typically measures implementation in terms of program outputs, or quantitative indicators of the

provision of services or activities. It describes who received the services and what services they received.

Health Care Provider (HCP): A provider is the healthcare facility that administered healthcare to an individual. Physicians, clinics, and hospitals are all considered providers.

Public: means belonging to Central Government or local government authority.

Referral: This is when a provider recommends another provider to a patient to receive specialized treatment.

Reimbursement: This is the repayment of healthcare expenses in a health insurance fund as compensation for healthcare services provided to beneficiaries.

Specialist: A doctor with expertise in a specific area of medicine. Surgeons, Orthopaedic surgeons, Oncologists, pediatricians, Gynaecologists, and neurologists are among the many specialists in the medical field.

Untimely Submission: Claims have a specific timeframe in which they can be sent off to an insurance company for processing. If a provider fails to file a claim with an insurance company in that timeframe, it is marked for untimely submission and will be denied by the company"

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE AND THEORITICAL FRAMEWORK

2.1 Literature Review

This review aims to establish a theoretical and conceptual connection between technology and the enhancement of claims settlement procedures and processes. Its primary purpose is to lay a strong foundation for the design of a qualitative study that delves deeply into evaluating the impact of technology on efficiency in the management of health insurance claims**.** Consequently, this chapter examines pertinent literature, theories, and conceptual frameworks related to utilizing technology to improve the process of claims management. Although much of the available research focus on claims management from the health facilities angle, this chapter explores this topic from the perspective of insurance companies.

To conduct this study, a literature review strategy was implemented, which involved searching for key topics and terms such as medical claims, capacity, capability, reimbursement model, reimbursement systems, and qualitative case study research methods and techniques.

Capacity of Insurance company to Adopt and Implement Technology for claims management

The capacity of insurance company to adopt and implement technology for efficient claims management depends on the available resources such as financial resources, enrollee base and availability of skilled and trained personnel. The work environment should be well prepared for the adoption process so that installation and training of end-users of the system will be seamless.

Asokere and Nwankwo (2010) defined a claim as a demand made by the insured person to the insurer for the payment of benefits under a policy.

Tull and Kerina (2018) identified key enablers for successful implementation of HMIS to include financial and motivational support, proper implementation and maintenance supported by good ICT. Meanwhile, there are key barriers that need to be considered in the discussion, including an unclear information framework, organizational factors and hierarchical organizational structures, cost issues in high-income settings, staff with poor language skills, and capacity barriers.

Implementation of Claims Management Technology and Resource Saving (Financial and Time)

For the insurance company, the key challenge to in claims management is to reduce medical and operating cost while also improving the policy-holder experience. According to Plattfaut et al, 2019, payers can benefit from automation at scale. They can reduce their operating expenses by up to 30% if automation solutions are employed in most of the steps. As the company expands its enrollee base, the number of providers it will have to partner with increase which in turn will lead to increase in the volume of claims it will have to process. To meet up manually, the natural response will be to increase the staff strength in the claims department. This means additional expenses in terms of salary and wages as well as other bonuses meant to encourage the claims staff.

Also, providers with fewer numbers of enrollees may decide to scan the claims form and send via mail. The insurance companies may have to print such claims out before vetting. This leads to additional cost of consumables like paper, ink, and maintenance and repair of printers.

A key contributor to high health insurance costs is the processing of claims. This ranges from overbilling of medicines, inappropriate application of tariffs, lack of evidence on diagnosis to

back claims, treatment outside the defined benefits package, irrational prescription of medicines, and provision of services above accreditation level (Andoh-Adjei et al, 2018, Ubindam, 2019).

Another usefulness that may be derived from the implementation of technology in the claims management process is fraud detection and prevention. Healthcare fraud is a global problem affecting both developed and developing countries. It is the deliberate attempt of perpetrators to take undue advantage of the inefficiencies in the systems (Amponah et al.,2022). According to Statistical Analysis Software (SAS), (2012), 10% of all insurance claims are fraudulent. Therefore, claim situations should be properly monitored in order to identify recovery opportunities from salvage, subrogation or third parties. Fraud can range from inflation of the quantities of medicine supplied to subscribers, duplication of claims, absence of a link between treatment and diagnosis, and overbilling of medicines (Andoh-Adjei et al, 2018, Ubindam, 2019).

The speed with which claim is processed, settled and paid is vital in ensuring building provider and enrollee confidence in the insurance company and can form the best form of marketing for the company. According to Irukwu (2000), claim settlement needs to be done expeditiously and equitably as it is the best form of advertisement for insurance companies. The size of the company and spread of the insurance company will determine its claim turnover. Processing large number of claims manually is time consuming and can lead to delay in payment to provider. This can have a roundabout effect as the provider may suspend or delay service to the enrollee until all claims are settled by the insurance company. In other words, delay in handling and settlement of claims not only earn bad name for the company but also increases claim costs making it more expensive for the company (Pranam & Goutam, 2019).

Adoption of Technology in Claims Management Process

Globally, several countries with health insurance schemes have found the need to adopt technology in its claim management process both in public and private sector using different strategies.

In the United States of America, series of major policy initiatives were launched, whose purpose was to drive the adoption of health information technology (IT) including the Health Information Technology Economic and Clinical Health (HITECH) Act as part of the American Recovery and Reinvestment Act (ARRA) of 2009 (22). ARRA authorizes an estimated $20 billion in direct grants and financial incentives to promote the adoption and meaningful use of electronic health records among health care providers and insurance companies for claims processing (American Recovery and Reinvestment Act [ARRA] of 2009, U.S. Department of Health and Human Services [DHHS], 1985, Electronic Health Record Incentive Program [EHRIP] 2010).

A study in the United States of America underpinned the relevance of adoption of technology in claims processing by insurance companies due to large volumes from providers (Sweeney, 2009). In Nigeria, the National Health Insurance Act, 2022 emphasizes the importance of technology in driving the goals and objectives in insurance including claims process as stated in sections 3 and 13 of the Act. The Act empowers the NHIA to drive the adoption of digital technologies to accelerate operations and processes in the health insurance sector (Okuzu, et al., 2022)

In administration of health insurance, there is the Health Sector ICT policy and e-health policy for the country (Achampong, 2012). However, this study recommended that for the systems to achieve better results some adjustments must be made so that it performs well, and must be precisely described before being implemented (Ogundeji, et al., 2019).

Global experience suggests that, to ensure the functionality and success of Health Insurance Management Systems, strong administrative capacity is required which include: The ability and information technology expertise to identify, register and enroll members from both formal and informal sector (determining which informal sector workers are to be exempted from contributions); the ability and information technology expertise to routinely process and manage claims and payments to providers used by beneficiaries (Achampong, 2012).

Most studies on evaluating the impact of technology on efficiency in the management of health insurance claims have been conducted in developed countries which have consistently advanced in their technological infrastructure over the years compared to developing countries. Nigeria is a developing country and insurance companies have embarked on adoption and implementation of technology in driving the health insurance eco-system and have majored in other aspects such as using technology to scale up health insurance coverage across the country (Okuzu et al.,2022). However, no studies have been conducted in evaluating the role of technology in improving the efficiency and outcomes of health insurance claims management to the best of this researcher's knowledge.

2.2 Theoretical Framework

This section focuses on major theories on evaluating the impact of technology on efficiency in the management of health insurance claims. It is of common agreement that technology has the potential to cause significant effect on the efficiency of firms as well as its productivity.

Also relevant to this section is a look at major theories that support medical claims processing and reimbursement to healthcare facilities for services rendered.

Theories on Technology Adoption

There are several theories for technology adoption, however, the most common are the Diffusion on innovation (DOI) (Rogers, 1995), the Technology, Organization and Environment (TOE) framework (Tornatzky and Fleischer (1990)), Theory of planned behavior (TPB) (Ajzen, 1985), Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). However, we shall examine the Technology, Organization, and Environment (TOE) framework and the DOI for the purpose of this research.

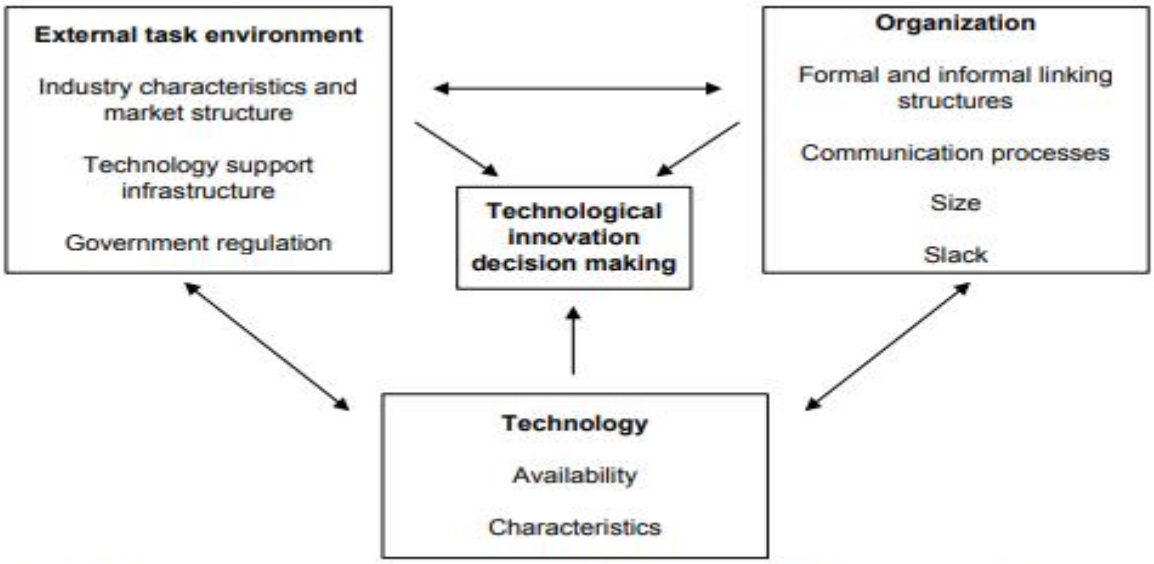
Technology, Organization, and Environment Context

According to Tomatzky and Fleischer, 1990, this theory identifies three aspects of an enterprise context that influences the process by which it adopts and implement a technological innovation: Technological context, organizational context and environment context.

Technological context refers to the internal and external technologies relevant to the firm. According to Starbuck (1976), it includes current practices and equipment internal to the firm as well as the set of available technologies external to the firm. For most health insurance organizations which are yet to adopt and fully implement recent technologies, their internal technologies hover around Microsoft office suites for data processing while the external equipment includes the computer hardware.

The organizational context refers to its characteristics such as scope, size and managerial structure (Oliveira & Martins (2010)). Adoption of new technology by an insurance company for claims processing will depend largely on the resources available to it, and the total claims turnover either weekly or monthly. This bears directly on its size, number of enrollees or subscriber, number of health facilities on its network and its spread across the country.

The environmental context is the arena in which a firm conducts its business – its industry, competitors and dealings with government (Tornatzky, & Fleischer, 1990).



Technology, organization, and environment framework (Tornatzky and Fleischer 1990)

Diffusion on Innovation (DOI)

The TOE framework is consistent with the DOI theory, (Rogers, 1995) which points that individual as well as internal and external characteristics of the organization drives its innovativeness.

DOI is a theory of how, why, and at what rate new ideas and technology spread through cultures, operating at the individual and firm level (Oliveira, & Martins, 2010)

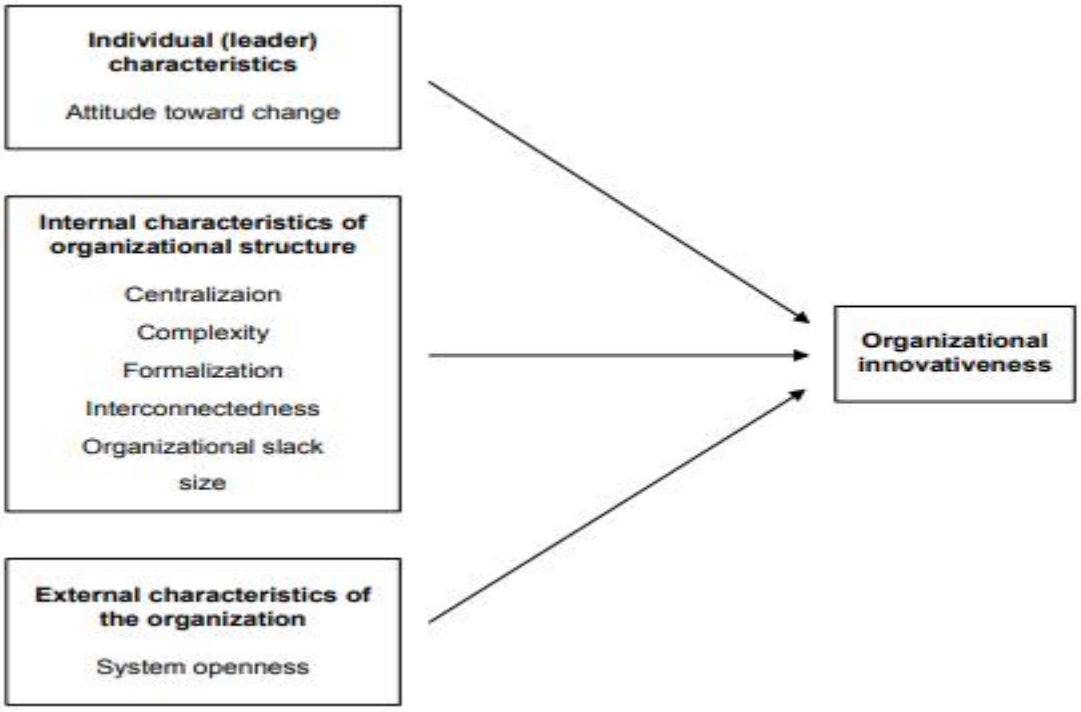
According to Rogers, adoption of new technology is gradual within an organization, rather than spontaneous. Time, process and people play a major role in its adoption. Generally, the cost-benefit analysis of a new technology will determine the speed of adoption. People will adopt an innovation only if they are sure of some relative advantage (Dutta, 2015).

For Rogers, innovations are communicated overtime in a particular social system within certain channels. As cited in Oliviera, 2010, Individuals are seen as possessing different degrees of willingness to adopt innovations, and thus it is generally observed that the portion of the

population adopting an innovation is approximately normally distributed over time (Rogers 1995).

There are five categories of persons along the adoption of new innovation pathway. They are the innovators, early adopters, early majority, late majority, laggards (Rogers, 1995). Identifying these separate group within the organization helps to clearly define both the supporters and opponents of the innovation, each of whom play separate but important roles in the decision-making process.

As represented by the figure below, individual (leader) characteristics, internal organizational structural characteristics and external characteristics of the organization are variables that affect the adoption or technological innovativeness at the firm level (Rogers, 1995).



(a) Individual characteristics describes the leader attitude toward change. (b) Internal characteristics of organizational structure includes observations according to Rogers (1995) whereby: "centralization is the degree to which power and control in a system are concentrated

in the hands of a relatively few individuals"; "complexity is the degree to which an organization's members possess a relatively high level of knowledge and expertise"; "formalization is the degree to which an organization emphasizes its members' following rules and procedures"; "interconnectedness is the degree to which the units in a social system are linked by interpersonal networks"; "organizational slack is the degree to which uncommitted resources are available to an organization"; "size is the number of employees of the organization". (c) External characteristics of organizational refers to system openness (Oliviera et al., 2011).

The adoption and implementation of technology by insurance companies to improve the efficiency and outcomes of claims management process is linked to a number of factors. Market success or failure of insurance companies is determined largely on its ability to manage its claims payout effectively and efficiently. To achieve this, there are a number of interconnected factors.

Firstly, is the company's capacity to adopt and implement technology for claims management. This encompasses a number of elements such as availability of financial resources to set up relevant IT infrastructure such as software application and hardware acquisition. Financial resources also determine the company's ability to engage skilled personnel such as IT technicians and system administrators.

The move for fully automated claims processing is also determined by the total number of enrollees it has, effect of which will determine the number of providers to engage as well as the total claim received by the company per time.

Another consideration is the adoption and implementation of technology process. The successful adoption of any technology will depend on choosing the right process from the

beginning which include extensive stakeholder's engagement and identification of the parties defined by the Diffusion of innovation theory propounded by Rogers (1995).

The resources saving advantage conferred on the insurance company by the implementing technology in its claims management process is another factor to be considered. As cited in Zacharia (2021), packaged claims software, the automated functions of eligibility verification and creation of the basic editing, automatic calculation and payment with associated checks, and explanation of benefits are becoming pretty routine (Health and Fund, (2015); Acquah-Swanzy, 2015). These determine resource saving in terms of finance and time.

CHAPTER THREE

RESEARCH METHOD

3.0. Introduction

This chapter states the methodology of the study. It includes the design of study, population of study, study setting, method of data collection, sample size, sampling technique, validity and reliability of research, administration of the instrument, ethical considerations and method of data analysis.

3.1. Design of Study

A cross-sectional exploratory study design was used for the study, adopting qualitative means of data collection. This is because the researcher intended to study a phenomenon as well as obtain data at one moment in time.

3.2. Research Population

The research population include three (3) health insurance companies, from which one (1) person from the ICT department, two (3) claim processing staff, one (1) quality assurance manager were interviewed. These respondents were purposefully and systematically selected because they are directly involved in the claims processing chain from enrollee identification to final approval for payment of a claim.

3.3. Research Setting

This study was conducted in Delta state using the Delta State Contributory Health Insurance Scheme – a state owned health insurance institution, and two privately owned insurance companies (HMOs) in the Delta state.

Delta State Contributory Health Commission

Delta State Contributory Health Commission is a Healthcare Financing organization established by the Delta State Government to ensure access to quality healthcare services for all residents of Delta State irrespective of their socio-economic status and geographical location, in an effort to achieve the United Nations' Sustainable Development Goal 3 in the year 2030.

In Delta State, the journey towards achieving Universal Health Coverage (UHC) commenced with the transmission of an Executive Bill to the Delta State House of Assembly on the 22nd of June, 2015, to establish the Delta State Contributory Health Commission. The Law established The Delta State Contributory Health Commission (DSCHC), The Delta State Contributory Health Scheme (DSCHS) and other Matters Connected Thereto, as well as, a Governing Board for the DSCHC which will regulate, supervise, implement and ensure an effective administration of a "Mandatory" Delta State Contributory Health Scheme for all residents of Delta State.

The DSCHS has 4 Enrollee Health Plans:

- Formal Health Plan for those whose premium are paid via Payroll % deductions covering a Husband, Wife and 4 Children below 18 years with a counterpart employer contribution for each Principal Enrollee.
- Informal Health Plan for those whose premium of N7,000/year/Enrollee are paid per individual enrollee covering only the individual enrollee.

- Equity Health Plan for those who have been classified as belonging to the Vulnerable Group (Pregnant Women, Children Under 5 Years, Elderly above 65 Years, Physically and Mentally Challenged and all residents of Delta State classified as Poor). Their Premium of N7,000/year/Enrollee is paid for by the Delta State Government.
- Private Health Plan for individuals that subscribe to pay extra premium for extra Healthcare service needs under the DSCHS.

The DSCHC commenced service under the scheme on the 1st of January, 2017, and currently has provided service to over 1,044,306 Enrollees (approx. 15% of the estimated Delta State population) in 4 years.

The DSCHC currently has 478 Accredited Public and Private HCFs for Primary healthcare and Secondary healthcare services spread across the State. The quality-of-service monitoring and accreditation of HCF is a continuous DSCHC service activity to ensure regular quality care for all enrollees of the Scheme.

Century Medicaid Services Limited (CMSL)

Century Medicaid Services Limited (CMSL) was established in 2013. CMSL are professional healthcare managers, researchers and developers, professional healthcare consultants and a Health Maintenance Organization (HMO). Century Medicaid Services Limited came into being as a concept and instrument of change. The company currently has over 20,000 enrollees and 130 healthcare providers across Nigeria with an approximate monthly claim turnover of 5000

Hyssop Healthcare International Limited (HHIL)

Hyssop Healthcare International Limited (HHIL) was established in 2020. The company provides prepaid (insurance) healthcare services to enrollees across Nigeria. HHIL is located in

Warri, Delta state and has offices spread across the country with about 15,000 enrollees with over a hundred healthcare providers. The company records a total claim turnover of three thousand monthly.

3.4. Method of Data Collection

A semi-structured interview was used for this study. This method was informed by the capacity of insurance company to adopt and implement technology for claims management, implementation of claims management technology and resource saving, and the adoption of technology in claims management processing.

3.5. Sample Size

A sample is a group of people, objects or items that are taken from a large population for measurement (Majure; 2016). The sample size for this research is fifteen (15) which include claim processing staff, IT personnel, call center representative, quality assurance managers.

3.6. Sampling Technique

The sampling technique used for this research was convenience sampling technique. This is because the respondents are those that deal directly with the claim management process.

3.7. Validity and Reliability of Research Instrument

To ensure the validity of the instrument, the unstructured questions was given to the research supervisor for validation using face validity.

The research instrument was pre-tested on ten (10) non-participants in the study. After an interval of three (3) days, it was readministered on different set of non-participants in the same office.

This is to ensure that the language used were simple and easy to comprehend and devoid of ambiguity.

3.8. Administration of Instrument

The instrument was administered directly by the researcher. The researcher recorded responses from the respondents and a total of fifteen (15) participants were interviewed.

3.9. Method Of Data Analysis

A thematic analysis approach was employed in analyzing the qualitative data. The researcher transcribed the recorded responses of the participants in other to get better view of their perspective and obtaining a picture of what the data portrays

Table1: Thematic Analysis Framework

THEME	CODE	SUB THEME
Technology	Use of technology	
	Adoption of advanced technology	
	Efficiency of technology	Efficiency
	Resource management	Resource management
	Fraud reduction	
	Future opportunities for technology improvement	
Organization	Size of the organization	Organizational operations
	Number of enrollees	
	Geographical spread	
	Staff capacity	
	Technological capability	Availability of technology
	Return on investment on technology	Financial capacity
	Duration of technological use	
	Reasons for adoption of	

Adoption and implementation of technology	technology	Acceptability of use of technology
	Ease of adoption of technology	
	Challenges with the use of technology	User friendly
	User acceptability of technology	

3.10: Ethical Considerations

The participants in this study were claim processing staff, IT personnel, call center representatives and quality assurance managers in three (3) different health insurance organizations, before participants were interviewed, they were provided with information about their roles in the study. Ethical issues of informed consent, confidentiality rights, option to withdraw were sufficiently discussed and clarified with the participants. All participants for the study volunteered to participate without coercion.

The permission of the organizations was sort and obtained before interview was conducted on their staff in their premises.

CHAPTER 4

PRESENTATION AND ANALYSIS OF RESEARCH FINDINGS

4.0 Introduction

The data for this study collected from the field on the impact of technology on efficiency in the management of health insurance claims in Nigeria are presented in this chapter. A total of fifteen participants were interviewed from three different health insurance organizations in Delta state, Nigeria. The findings are based on the specific objectives of the study which are: the capacity of health insurance companies to adopt technology in claims management, resource benefits resulting from implementing technology in claims management, the adoption and implementation strategies of implementing technology in claims management.

The analysis of field data generated three themes of Technology, Organization and Adoption and Implementation of technology. The themes further generated seven sub-themes which are expounded below based on the responses from the study participants.

4.1 Demographic Characteristics of Research Participants

In the study a total of fifteen participants were interviewed which included ten (10) females and five (5) males. The study participants had different academic background of

Master's degree, Bachelor's degree and Registered Nurse from different States' school of Nursing. The classification is reflected in Table 4.1 below.

Table 4.1: Categories of Respondents

Number of participant 15		
Sex	Males	5
	Females	10
Age	All	20-48
Level of Education	Master's degree	3
	Bachelor's degree	3
	Registered Nurses	9

Source: Survey Data 2023

4.2 CAPACITY OF HEALTH INSURANCE COMPANIES TO ADOPT TECHNOLOGY IN THE MANAGEMENT OF CLAIMS

4.2.1 ORGANIZATION

Study participants were asked about the capacity of health insurance companies to adopt technology in the management of claims and in this theme, three sub-themes were generated which are availability of technology, organizational operation and financial capacity to adopt technology.

4.2.2 Organizational Operation

Organizational operations such as number of health care providers on the network of the insurance company's list of providers, geographical spread across the country and the number of enrollees the company has, are critical considerations that influences the adoption of technology in the management of claims. The responses from the study participants are in agreement with these factors as key motivators for the adoption of technology.

In his response, one of the quality assurance managers said:

> *"As a national HMO with several healthcare providers and enrollees across Nigeria, you cannot effectively monitor utilization*

and manage claims processing and payout using manual means of Microsoft excel. It will affect both your operations and reputation".

Another experienced quality assurance manager also responded in a similar way:

"Nearly all healthcare providers use Electronic Medical Records system. As a health insurance company with national spread, there is no way you can use manual means for claims submission and adjudication".

Similarly, a third quality assurance manager from a government owned insurance organization said:

"We have over one million enrollees. In some months, we record 30% utilization which generates about three hundred thousand claims. Only technology can help adjudicate these claims effectively'.

4.2.3 Availability of technology for claims management

Study participants were asked if they were familiar with any more advanced technology in the management of health insurance claims. All the respondents said they were aware of existing and improved technology.

One of the respondents said:

"Yes, I am familiar with other advanced technologies like Curacel and Medismart. They make the work flow smoothly and in a very organized manner".

Another added that "There are several advanced technologies, both locally developed and internationally sourced for vetting claims".

4.2.4 Financial Capacity of The Health Insurance Company

The financial capacity of the health insurance company is also a key influence in the adoption of technology for claim processing. This is because the available advanced technologies are not cheap to install and maintain.

Study participants were asked if they thought that available resources, both financial and technological, has influenced their organization's ability to implement advanced technology solutions for managing health insurance claims efficiently

A respondent said:

> *"Every insurance company would really want to adopt modern technology in their claim process because of the numerous benefits it presents but these technologies are not cheap to acquire and maintain".*

Also, another respondent said:

> *"Aside the cost of acquisition, yearly rentals are high. If you don't pay on time, some developers will immediately suspend service".*

4.3 RESOURCE SAVING BENEFITS (FINANCIAL AND TIME) FROM IMPLEMENTING TECHNOLOGY IN THE MANAGEMENT OF HEALTH INSURANCE CLAIMS

4.3.1 TECHNOLOGY

Study participants were asked "Compared to using Microsoft office suites in claim processing, how do you perceive the benefits of adopting and integrating more advanced technologies in processing claims?". This generated two sub-themes of efficiency and resource management.

4.3.2 Efficiency

Timely processing and reimbursement of claims by health insurance companies is integral to enhancing HMO – Provider relationship. It also helps in building market reputation. It is also expedient for insurance companies to effectively manage received premiums in order to meet up with payment of claims and take care of its administrative cost as well as maximize profit. It is therefore important that claims are processed accurately.

Participants were also asked if in their opinion whether the use of improved technology has enhanced speed and accuracy of processing health insurance claims in their organizations.

All participants responded in the affirmative that the use of improved technology helps in improving speed and accuracy of claims processing.

One of the respondents said:

> *"In the age that we are now, advanced technology affords real-time billing process and authorization system because when codes are issued or services declined, the healthcare provider immediately sees the reason for decline instead of waiting until the bill is submitted".*

Similarly, another respondent said:

> *"Using advanced technology helps to send payment advice immediately to providers as against waiting for the usual one month or so when claims are sent".*

In terms of volumes of claims received and processed monthly, study participants noted that while they spent about thirty days to process less than five thousand claims, it took far less amount of time to process more than thirty thousand claims monthly using advanced technology.

4.3.3 Resource Management

According to Statistical Analysis Software (SAS), (2012), 10% of all insurance claims are fraudulent. Study participants were asked about the resource benefits resulting from using technology. The research questions focused on the administrative and medical cost especially in areas of fraud detection and minimization with regards to claims generation by healthcare providers.

- **Administrative cost**

Field data showed great reduction of administrative cost especially labor cost, cost of printing out claims sent via email before vetting, stationery cost and courier services cost.

A respondent from one of the privately owned insurance companies said:

> *"Providers no longer spend so much on way billing their claims from distant locations, neither do we spent money on transportation to move to various providers to pick up claims at*

> *the end of each month. With advanced technology, claims are submitted online and in real time".*

Data also revealed a reduction in labor cost for the insurance organization.

> *"What the technology has done is to help reduce labor cost. When claims are adjudicated manually, it moves from one desk to another before it is finally approved for payment but with the introduction of technology, vetting process is automatic and in real time. You don't need several hands in the claims department".*

- **Medical cost**

One of the biggest challenges in the health insurance industry is fraud, both from the healthcare providers and enrollees. Some HCPs indulge in certain malpractices such as making claims on services not rendered or drugs not dispensed in order to unjustly increase their pay from the health insurance organizations. Similarly, some enrollees defraud the system in the attempt to exceed defined benefit plan or cover. These fraudulent actions pose huge loss for the organization which manual claim processing may not detect.

Advanced technology has also helped in reducing medical cost as revealed in the responses from study participants. It is noted that:

> *"Double billing and polypharmacy have reduced drastically. Cases of erroneously exceeding enrollees' benefits has also greatly reduced".*

Another area where medical cost has been reduced is in *"authorization of care for enrollees who are not present at the healthcare facility but request was made for code. It is a form of fraud but the enrollee identification module of the technology has helped to minimize such incidences"* a respondent from a government owned insurance organization said.

Also, it is also clear from transcribed data from respondents of two of the three organization are of the opinion that the use of advanced technology has reduced other forms of malpractices.

"In some cases, some providers try to introduce sharp practices to increase their claims. This affects the HMO as it increases their claim payout and reduce profit".

Contrastingly, a respondent from one of the privately owned organizations is of the opinion that fraudulent practices increased with the introduction of technology in medical billing from the HCPs. With manual claims submission, once the doctor is through with attending to the enrollee, he immediately posts his diagnosis and prescriptions. The billing officers in the hospital will have to input whatever is posted on the manual claims form for submission. During audit, you can easily check for any discrepancy between what is posted and what was submitted. However, it is different with electronic submission of claims which has several diagnoses at the backend with associated treatment code.

So, in the opinion of the respondent, whether or not all the protocol were followed in treating the enrollee, claims will be submitted in that regard whereas, in the manual process, claims are submitted only on what was done. It easier for providers to justify fraudulent claims with the technology than manually. In the words of the respondent:

> "*The new technology introduced fraud in a new dimension. Hospitals that are very sophisticated technologically now indulge freely in polypharmacy. They simply go to the backend and select diagnosis that matches the drug they fraudulently claimed to have dispense. That way, it is difficult for a claims manager to detect or contest but when you contact the enrollees, you will find the drugs were not dispensed unlike manual claims submission where you can match what they submit with what is in the electronic medical record".*

4.4 ADOPTION AND IMPLEMENTATION STRATEGIES OF TECHNOLOGIES EMPLOYED BY INSURANCE COMPANIES IN THE MANAGEMENT OF HEALTH INSURANCE CLAIMS

4.4.1 Top Management Support

Top management support is very key to the adoption and implementation of technology in health insurance organization. Study participants were asked the role their managerial structure played in the decision-making process regarding the adoption and integration of advanced technologies for claims processing.

The need for Management support was reported in all the companies engaged, however, the degree of support varied. While two of the company's management supported wholistic and robust technology which incorporated all the departments and their activities, the others supported the technology that concerns only the claims department. Financial implication of implementing the more robust strategy was the major barrier to company-wide adoption of technology. This position was aptly captured by a respondent thus:

"Every managerial level played a critical role because when it comes to claims processing, the quality assurance has a role to ensure that every diagnosis is in line with standard practice, the customer care which is responsible for issuing pre-authorization code, the accounting department responsible for final payout, even the internal control department all played key roles in the development, adoption and implementation of the robust technology we are using" a respondent said.

Similarly, another participant averred that:

"When it was time to adopt and implement technology for claims processing, each departmental head was asked to come up with a robust workflow process of their department. Upon consideration of the various activities, our vendor gave us a quote which was above what we could afford. The board had to limit the development of the technology to just the claims adjudication alone. All other activities are performed manually".

4.4.2. Acceptability of the technology

Response from all the organizations interviewed showed that before the final implementation of the adopted technology, the board and top managers engaged the other staff in a participatory manner. At their various general meetings, trainings were conducted and demonstrations of the technology displayed. All the staff were allowed to make contributions.

In this regard, a respondent said:

> *"After our management meeting, we called for a general meeting which also had our Chief Executive Officer in attendance. It was an engaging meeting indeed".*

This showed that all parties were carried along in the decision-making process.

4.4.3. User friendliness of the technology

The user interface of the technology was considered from both the internal and external users' perspective. Respondents were asked the strategies their organization has taken to train and upskill staff in utilizing advanced technology. It was found that two of the three organizations said they were trained for periods ranging from seven (7) to fourteen (14) days before full deployment of the technology and a staff of the technology developers was made to work with them for different periods to help guide usage.

"*The application is easy to use. We were trained on the use of the whole technology for the first week, then training was limited to our various departments for another one week*" an indication of customer service.

Another respondent from a government owned insurance organization said:

> *"Each department was given a user manual. If there is anything we do not understand, we consult the technology developer and it is swiftly resolved".*

Also, a senior manager from one of the privately-owned health insurance organizations stated that the training was in phases and still ongoing. It is asserted that:

> *"The first training was with all the senior managers. Afterwards, it was training for each manager and his/her unit members to understand the mechanism as well identify challenges peculiar to their department. After that, we moved to the trial phase with monthly review of the whole system before it was deployed for controlled use in the head office only. Currently, it has been deployed to the zonal offices which is the last phase of full deployment".*

Externally, each organization had to send a trained staff to help install the application on the systems of the HCP and also train their designated staff. The respondent organization opined thus:

> *"We identified some specific providers from our network based on location instead of inviting all of them at same time. Using that sample, we were able to identify areas for upgrade".*

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSION

5.0 Introduction

This chapter covers a summary of this study based on findings from the field. It summarizes discussion and key findings related to the specific objectives of the study which are: the capacity of health insurance companies to adopt technology in claims management; resource benefits resulting from implementing technology in claims management; the adoption and implementation strategies of implementing technology in claims management. It also includes conclusion, recommendations and area for further studies.

5.1 Summary

In Nigeria, the health insurance industry is rapidly expanding as more people are on the lookout for cheaper alternative sources of healthcare financing. In their bid to achieve Universal

Health Coverage of ensuring equitable access to quality healthcare services for all, irrespective of their financial status, the federal and state governments have set up various institutions like the National Health Insurance Agency and the Delta State Contributory Health Commission to manage financial contributions of subscribers to the health insurance scheme. Also, many individuals and organizations have increasingly continued to invest in the sector for profit maximization by increasing their subscriber base.

Profit maximization in the health insurance sector is possible when claims payout is minimized and premium inflow is increased. To achieve this, the need to effectively and efficiently manage provider and subscriber claim cannot be overemphasized. Therefore, previously crafted manual techniques of claims management are becoming less desirable and unsustainable with the rapid development of more modern and advanced technologies for efficiently managing the claims process.

However, the adoption and implementation of modern technology in claims management is based on the capacity of health insurance companies to adopt technology; resource saving benefits (financial and time) resulting from implementing technology; the adoption and implementation strategies of implementing technology.

Capacity of Health Insurance Companies to Adopt Technology in The Management of Health Insurance Claims

Findings from this study reveals that the capacity of the health insurance company to adopt technology in their claim management process is hinged on a number of factors which include the scope of organizational operations such as the number of healthcare providers on its network, its enrollee base as well as geographical spread across the country. Equally important is the knowledge and awareness of advanced technology for claims management.

Findings also revealed that the financial capacity of the health insurance organization is a key consideration in the adoption and implementation of technology in claims processing. This is because of the high-cost implication of acquiring and maintaining available advanced technology. Aside the initial cost of acquisition of the technology, health insurance organizations pay huge sums in the form of annual subscription or rental to the technology developers. This adds up to the overall cost of adopting and implementing advanced technology in claim processing.

Resource Saving Benefits (Financial and Time) From Implementing Technology in The Management of Health Insurance Claims

Timely processing and reimbursement of claims by insurance companies is integral to enhancing HMO – Provider relationship. It also helps in building market reputation as well as enrollee confidence.

High claim turnover is directly proportional to the total number of subscribers an insurance organization has. The more the subscribers, the higher the claim. Health insurance organizations with large number of enrollees are increasingly finding it difficult and less attractive to manage claims manually.

They therefore find the adoption and implementation of technology in the claims management process necessary as it affords the opportunity to adjudicate several claims within a shorter period in an effective and efficient manner. The efficiency of advanced technology in health insurance claims management not only increases the speed of claims adjudication but also its accuracy. Furthermore, data obtained from the field in this study shows that implementing

technology in claims management also helps to reduce both administrative and medical cost. With advanced technology, a smaller number of staff is required for claims processing. This means a reduction in the labor cost of the organization.

One of the biggest challenges in the health insurance industry is fraud, both from the health facilities and enrollees. Some health facilities indulge in certain malpractices such as making claims on services not rendered or drugs not dispensed in other to unjustly increase their pay from the health insurance organizations. Similarly, some enrollees defraud the system in the attempt to exceed defined benefit plan or cover. These fraudulent actions pose huge loss for the organization and threaten long-term sustainability.

However, findings from this study shows that the fraud detection capacity of advanced technology helps in controlling fraud, thereby protecting the health insurance organization from unjust and excessive claim payout, culminating in increased profit.

Adoption Strategies Employed by Health Insurance Companies in Implementing Technology in Management of Claims

Findings from this study shows that people with the knowledge of the importance and use of technology in claims processing is vital to its adoption and implementation.

The process of adoption begins when top management staff see the need for advanced technology in claims adjudication. However, successful implementation requires that every stakeholder is identified and made part of the process, noting and addressing any particular challenge they may have.

According to the findings of this study, to improve acceptability, it is the duty of the top management staff to adopt strategies that helps the workforce to accept advanced technology as

well as initiatives to train and upskill staff in utilizing advanced technology for claims management.

5.2 Recommendations

Findings from this study reveals the importance of adopting technology in claims processing as well as the challenges to its adoption. The following are therefore recommended:

i. The National Health Insurance Act (NHIA) should take measures to boost national adoption of technology in claim processing by health insurance companies in view of the numerous benefits. This also has the potential to challenge the nation's technology space in developing new technologies or upgrading existing ones

ii. Developers of technology should have a mix of modules such as module for enrollee identification, code issuance, claim adjudication etc. to enable health insurance company invest in technology according to their financial capacity and upscale at their own pace

5.3 Conclusion

This study explored the impact of technology on efficiency in the management of health insurance claims. The specific objectives were: to assess the capacity of health insurance companies to adopt technology in the management of health insurance claims; to explore resource saving benefits (financial and time) from implementing technology in the management of health insurance claims; to explore adoption strategies employed by health insurance companies in implementing technology in management of claims. A total of fifteen (15) participants were involved in the study.

In considering the capacity of health insurance companies to adopt technology in the management of health insurance claims, the organizational operation, availability of advanced technology and the financial capacity of the organizations were assessed. The resource saving

benefit of implementing technology in the claims process include timely processing of claim and cost saving.

Evidently, from the findings of this study, the adoption and implementation of advanced technology in claims processing offers huge benefits as it positively impacts the efficiency of its management. It also has huge benefits in area of cost reduction, increase in stakeholders' confidence as well as market reputation of the health insurance organization. Hence certain recommendations were proffered.

5.4 Area For Further Study

From the findings of this study, it is clear that more research is needed that will help envision the role of technology evolving in the future for health insurance claims management and the potential challenges or opportunities foreseeable as the industry contributes to adopt newer technology.

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APPENDIX

INSTITUTE OF PUBLIC ADMINISTRATION AND EXTENSION SERVICES

UNIVERSITY OF BENIN, BENIN CITY

Dear Respondent,

This questionnaire is designed as part of Masters in Health Planning and Management Research on assessment of the impact of technology on efficiency in the management of health insurance claims.

This exercise is purely academic and so any information supplied would be used strictly for that purpose and thus treated as confidential.

INTERVIEW GUIDE FOR CLAIMS PROCESSING STAFF

Aim: To determine how the online Claims management system has contributed to saving the company's resources (Financial and Time)

Facility name ……

Interviewee name……

Title……..

Age……Sex……

Education……..

Date of interview……..

Q1. Can you describe the current technology used in claim processing in your company?

a) Are you familiar with processing claims using technologies like Microsoft office suites?
b) Are you familiar with any more advanced technology in processing health insurance claims? If yes, kindly state any.
c) Do you think that using Microsoft office suits affects the efficiency of claims management process?
d) Compared to using Microsoft office suites in claim processing, how do you perceive the benefits of adopting and integrating more advanced technologies in processing claims?
e) In your opinion, what are the benefits of using advanced technology in processing health insurance claims in your organization?
f) Can you provide examples of how technology has improved the accuracy of claims processing in your company?
g) Can you provide examples of how improved technology has improved the speed of claims processing in your company?
h) In your opinion do you think claims submission duration from HCPs have improved after introducing the system? Can you explain how?
i) Has the introduction of the system helped you to reduce administrative costs? If yes, how?
j) Do you think that the introduction of more advanced technology has helped in reducing medical cost? If yes, how?
k) In your opinion, do you think that the introduction of mor advanced technology help in reducing fraud from HCPs? If yes, how?
l) From a strategic perspective, how do you envision the role of technology evolving in the future for health insurance claims management, and what potential challenges or opportunities do you foresee as the industry continues to adopt newer technologies?

INTERVIEW GUIDE FOR QUALITY ASSURANCE MANAGER

Aim: To determine the capacity of health insurance organization to implement online claims management system.

Insurance company name ……..…….

Interviewee name…….

Title……...

Age……Sex……

Education……..

Date of interview……..

Q1. Do you think that the size of your health insurance organization, in terms of the number of enrollees, impact the adoption and utilization of technology for claims processing? If yes, how?

a) Do you think that the scope of your organization's operations, such as the number of health facilities in your network and your geographical spread across the country, influences the efficiency of health insurance claims management, especially in the context of technology adoption?
b) What role does the managerial structure of your health insurance company play in the decision-making process regarding the adoption and integration of new technologies for claims processing?
c) Do you think that the available resources, both financial and technological, has influenced your organization's ability to implement advanced technology solutions for managing health insurance claims efficiently? If yes, how?
d) What considerations or obstacles have influenced the pace of adopting and fully implementing recent technologies for health insurance claims management?
e) What challenges have you faced in aligning technology adoption with the turnover of health insurance claims, whether measured weekly or monthly, and how have you addressed these challenges?
f) What strategies or initiatives has your organization taken to train and upskill staff in utilizing advanced technologies for managing health insurance claims,
g) What strategies have you employed to assess the return on investment (ROI) for technology adoption in the context of claims processing, considering factors such as the size of your organization and the volume of claims?
h) From a strategic standpoint, how do you foresee the organizational context evolving in the future, and how will this impact the utilization of technology for health insurance claims management, particularly in relation to changes in size, scope, and managerial structure?