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Information and Communication Technology's Effect on Inventory Management

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Abstract
The purpose of this study was to determine how ICT affected inventory control at Anaji Choice Mart in Takoradi. The study specifically aims to determine the extent of IT system usage in inventory management in supermarkets at Anaji Choice Mart, Takoradi, as well as to establish the advantages of IT usage on inventory management at the Mart and to identify the difficulties associated with using IT in inventory management there. The entire staff population of 150 was sampled for this study using a non-probability sampling technique called purposive sampling. Descriptive statistics, such as frequencies and percentages, were used to analyse the data and explain the variable characteristics. According to the study's findings, Anaji Choice Mart's inventory management system uses information technology to determine order quantity, forecast demand, stock valuation and accounting, stock keeping units, and just-in-time (JIT) systems. Additionally, it was learned from the respondents that ICT has an impact on the Mart's inventory management performance, and it was also revealed from the respondents that there are challenges.

Keywords: *Inventory Management | Procurement Planning | Value for Money | ICT | Communication Technology's*

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1.0 INTRODUCTION

1.1 Background of the Study

Today's volatile global business environment is characterized with supply chains that are increasingly longer and more intricate, with more interconnected links, higher stakeholders' expectation, and more sources of supply chain competition (Kamble, & Gunasekaran, (2020).). Successful supply chain management relies on organizations working together and collaborating effectively (Dubey et al., 2019). Due to the global span and impact of the supply chain, firms instinctively understood that the synchronized flow of materials and services, information, knowledge, and finance had the potential to produce desirable outcomes. In cognizance of the need to coordinate and integrate these flows both within and among companies, firms have continually integrated modern information technology tools in Supply Chain Management (SCM) which has resulted in the improved business efficacy to a level never imagined before.

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which has resulted in the improved business efficacy to a level never imagined before (Helms et al, 2000).

The integration of IT in SCM and in particular inventory management holds great potential to unlocking the efficacy of inventory management in today's supply chains by improving information sharing, increasing predictability, reducing waste in value chains, better monitor demand for certain products and place orders to prevent an out of-stock situation, hence reducing bullwhip effects and lead time. Information
Technology (IT) continues to be one of the most important enablers of effective supply chain management and improves supply chain agility, reduces cycle time, achieves higher efficiency and deliver products to customers in a timely manner.

A great deal of interest in supply chain management stems from the availability of information and the methods to analyze this information to reach meaningful results. Haag and Stephen (2010), assert that the increasing importance of electronic business brings to fore new opportunities and the widespread use of internet makes IT tools a source of competitive power for many companies. Further, IT has been adopted in inventory management processes by firms as a competitive edge and to build strategic long term relationships along the supply chain. The swift development of IT, as well as the declining prices for its use, has considerably enhanced its diffusion during the last few years. As a consequence, the impact of IT on productivity has become a broadly discussed topic in management sciences, and several studies find empirical evidence for the positive productivity effects of IT at the firm level. Nevertheless, IT adoption may increase organizational flexibility and competitiveness (Devar at el a2013).

Inventory management is pivotal in any effective and efficient organization. The principal goal of inventory management involves having to balance the conflicting economics of not wanting to hold so few or too much stock. Such a golden balance is important in two ways; firstly, as it saves the organization from having to tie up inactive capital, incurring huge costs in storage, spoilage, pilferage and obsolescence of inventory and secondly to avert the cost of not meeting customer requirements. According to the Official Dictionary of Chartered Institute of Purchasing and Supplies (CIPS) inventory is a list of items held in stock or on the asset register of an organization often used to mean the stock itself. An inventory management system is a system that encompasses all aspects of managing a firm's inventories; purchasing, shipping, receiving, tracking, warehousing and storage, turnover, and reordering. Abernathy et al, 2000 hold that retail firms can obtain massive benefits by integrating its inventory management systems with both logistics and its upstream supply chain. This would thrust inventory system to 'just-in-time' demand-pull supply systems which implies essentially linking reordering to real-time electronic point-of-sale (EPOS) - record consumer demand, allow tracking of orders consequently substantial reductions in both retailer inventory holdings and the amount of capital tied up in those holdings.

1.2 Statement Of The Problem

Inventory is often the largest asset after fixed assets. Inventory costs are often the biggest costs in businesses and these costs if reduced would yield the greatest benefit in strengthening the firm's competitive edge. Effective inventory management which involves integrating modern ICT allows an organization to fulfill customers' expectations of product availability while enhancing the retailer to achieve the golden balance of not holding too much stock thus minimize inventory costs. Supermarkets and other retail firms face the impossible task of physically monitoring the inventory levels of each stock item. Using ICT solutions to automate an organization inventory process optimizes efficiencies (accuracy and flexibility) and achieves greater coordination of the activities of inventory management of the organization.

There is a significant amount of research demonstrating the adoption of ICT in supermarkets in Kenya and beyond. Yu & Ramanathan, (2008) studied ICT adoption in UK firms and found out that out of 41 retail businesses that included supermarkets, 20 had installed high technology in ICT and had achieved significant operational efficiency. Otiso, Chelangat, & Bonuke (2012) carried out research that aimed at establishing effectiveness of ICT in service quality delivery at Kenya Power and Lighting Company. The study found out that ICT boosted service quality and improved customer satisfaction. Omwansa (2013) in his study on ICTs and

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operational efficiency in supermarkets in Nairobi found out that the supermarkets with largest extent of ICT application in their premises had the highest operational efficiency. However, the impact of ICT on 9 inventory management on supermarkets in Nairobi has not been given appropriate attention by scholars. Irungu and Wanjau (2011) carried out research on the effects of Vendor Managed Inventory (VMI) technology on supermarkets in Kenya. They found out that utilization of VMI systems increased effectiveness in stock management and cash flow management. Majority of the existing studies do not address the impact of information communication technologies adopted in inventory management by supermarkets.

Giving the challenges firms face in managing inventory through the manual system, most firms are now focusing on the automation of organisational functions and processes. The most available research on ICT has focused on how ICT has impacted on processes and functions within a firm. Little has been said about how ICT has an impact on inventory management in supermarket operations. The study, therefore, assesses the impact of ICT on inventory management in the operations of supermarkets.

1.3 Objectives Of The Study

This research aimed to establish the impact of ICT on inventory management in Anaji Choice Mart, Takoradi. The specific objectives of the study were to:

1. Establish the extent of usage of IT systems in inventory management in supermarkets at Anaji Choice Mart, Takoradi.
2. Determine the impact of IT on inventory management performance at Anaji Choice Mart, Takoradi.
3. Establish the benefits of IT usage on inventory management at the Mart.
4. Identify the challenges in using IT in inventory management at Anaji Choice Mart, Takoradi.

1.4 Significance Of The Study

The study will be of importance to large-scale retailers/supermarkets to know the suitable ICT which they can adopt in inventory management. This study is of great importance to supermarkets owing to the highly competitive environment and the huge investment in inventory these firms transact in. Academicians will benefit from this study as it will serve as a platform for further research, review and critiques which will notably help bring to the fore new knowledge in inventory management in Takoradi. Additionally, new insights can also be drawn from the comparison of inventory management processes across economies as shall be presented in the paper hence new knowledge. The government as a facilitator of ICT adoption through regulations and provision of appropriate infrastructure will find this paper useful as it can inform its decisions and policy papers especially on integrating inventory management to include tracing and tracking of consumer goods.

1.5 Scope Of Study

The study is limited to Anaji Choice Mart, specifically all the departments. The study focuses on the impact of Information Technology on inventory management in the operations of Anaji Choice Mart. Anaji Choice Mart was chosen because it is a well-structured organization that deploys the use of Information Technology in their operation. A case study research design was adopted. The study was descriptive. Both primary and secondary sources of data were used. Primary data will be collected through the use of designed questionnaires which will be administered and also through personal observations. Secondary data will be collected through the use of recognized textbooks, journals, newspapers, magazines of the company, the internet and lecture notes and articles/reports. The study involved a sample size of 150. For data analysis, the Statistical Package for Social Sciences (SPSS) was used.

2.0 LITERATURE REVIEW

This chapter describes integration of ICTs in inventory management systems and their potential benefits. Further the conceptual framework necessary to address the research question will be discussed.

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2.2 Theoretical Framework

The impact of ICT on inventory management can best be explained by two theories namely the Transaction Cost Economics (TCE) theory (Maltz, 1993; Skjott-Larsen, 2000)

2.2.1 Transaction Cost Economics (TCE) Theory

The Transaction Cost Economics (TCE) theory argues that the use of ICT will lead to reduced transaction costs associated with the management of transactions (Coase, 1937; Alchian & Demsetz, 1972; Williamson, 1975).

2.2.2 The Resource Based View (RBV) Theory

This theory states that to transform a short-run competitive advantage into a sustained competitive advantage requires that these resources are heterogeneous in nature and not perfectly mobile. Effectively this translates into valuable resources that are neither perfectly imitable nor substitutable without great effort.

2.3 Information Technology

Information Technology Social science scholars' work of the term "technology" alludes to material development utilization and also the educated support what's more social contexts. It alludes all of the organization of information to those accomplishment about useful purposes and additionally whatever apparatus alternately procedure of completing alternately making, toward which ability is enlarged (Brisson, & Luppicini, (2015).). In other words, engineering organization offers new competencies that prompt noteworthy transforms in the association. It indicates the new __Published by European Centre for Research Training and Development UK (www.eajournals.org) 22 ISSN 2054-0930 (Print), ISSN 2054-0949 (Online) method for distributing majority of the data for those organizations (Afshari, Bakar, Luan, Samah, & Fooi, 2008). Stands for "Information Technology," and is pronounced "I. T. " it alludes all the anything identified with registering technology, for example, such that networking, hardware, software, the internet, or the individuals that worth of effort for these technologies.

Large number organizations presently have IT offices for Dealing with the computers, networks, and different specialized foul ranges of their organizations. IT employments incorporate PC programming, organize administration, PC engineering, Web development, specialized foul support, What's more large portions other related occupations. Since we live in those "information age," information technology has become a part of our everyday lives (Kumar, 2014). Technology can be defined as machinery that enables recording, processing, retrieving and the transmission of information or data (Apulu & Latham, 2011). This is that reality for engineering organization step by step new inventions and discoveries are making the new period from claiming organizations. It may be clear that the most recent decade about this century need been seeing those rise from claiming investment globalization.

An wonder the place diverse economies are blending under An bound together worldwide business (Ansari, 2013). Majority of the data engineering organization need radically changed those best approach that numerous individuals employed, work and think. Through those years, innovation need touched another pinnacle and currently it will be not limited will created nations (Bakshi, 2013). Information Technology (IT) gives quality of the firm toward expanding internal and external facilitating efficiencies, and firms (Mathaba, Dlodlo, Smith, & Adigun, 2011). Development of IT is increasing at a rapid pace in effort to fill gaps in the market that are identified and which promise to meet needs of users in various fields. New software and matching equipment have been developed and adapted to daily lives of people. Examples of developments in ICT tools include smartphones, tablet computers, cloud computing, fast internet speeds now in Fourth Generation (4G) stage among others.

2.4 Inventory Management

The inventory management is regarded as a key element for the reduction and control of total costs and improvement of the level of service provided by the companies (Wanke, 2004). Inventory is a contemporary asset to a firm, but it is expensive will uphold as it sits tight will

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transformed into future revenue. At the same time as, extra inventory does growth costs, a scarcity of Inventory can also bring about misplaced sales (Shin, Ennis, & Spurlin, 2015). Inventory is a totally essential thing in every organization and it requires severe managerial attention because it ties up a variety of companies' capital (Samuel & Ondiek, 2014). Inventory represents an in-depth listing of changeable objects inside the form of raw materials, in-manner or finished goods, which are wanted within the manufacture of products or to maintain the machinery and equipment in accurate working circumstance. It is miles an essential part of an enterprise (Singh & Singh, 2013). Inventory represents a vital choice variable at all tiers of goods production, distribution and income, similarly to being a prime part of total cutting-edge assets of many groups (Mukopi & Iravo, 2015). An inventory management system is a device that encompasses all elements of managing a firm's inventories; buying, shipping, receiving, monitoring, warehousing and garage, turnover, and reordering (Kithinji, 2015). The primary activities are: inventory planning and order forecasting, inventory observing and stability reconciliation and inventory reporting. There is distinctive forms of costs that take part in inventory cost structures: ordering (or setup) cost, carrying (or holding) cost (cost of capital, cost of storage, cost of obsolescence, deterioration, and loss), stock out cost, object costs, transport costs and other cost matter to volume discounts (Šabanović, 2012).

The one most important component of working capital is the inventory management. Effective Inventory management facilitates will contribute base trusts in stock looking after coherence clinched alongside benefits of the business activity, expands those spans of the benefits of the business exercises by expanding aggregate offers Subsequently expanding reusing for stores Also generating higher profitability. As towards this, if control proves inefficient in stock control, it results into better inventory conversion duration, high fees of inventory, leading to reduced recycling of price range, in the long run effecting profitability and liquidity of the organizations (Madishetti & Kibona, 2013). When it comes to handling stock, organizations need to keep sufficient stock to satisfy demand without investing in extra they require. Inventory control systems pathway the amounts of each thing an organization maintains, triggering an order of extra inventory whilst the portions fall below a pre-decided amount (Kumar, 2014).

For (Roy, 2012), the area plays very important role in the overall cost of operations and supply chain of any business big or small. For (Han, 2007), inventory is used as a cushion against the supply and demand uncertainties. In the same vein, for Khunagornniyomrattana et al (2007), inventory is a double-edged weapon, since the lack of inventory leads to loss of productivity, while excess inventory leads to loss of profitability.

2.4.1 Economic Order Quantity Model

Economic order quantity (EOQ) is the level of inventory that minimizes total inventory holding costs and ordering costs.

2.4.2 Inventory Control systems

An inventory system controls the inventory level by determining how much to order (the level of replenishment), and when to order. There are two types of inventory control systems; the continuous or perpetual inventory and periodic inventory systems. In a periodic inventory accounting system, the inventory account is updated periodically, usually daily, monthly or quarterly.

However, under the perpetual inventory system, inventory accounts are updated automatically and continuously.

2.5 IT and Inventory Management Systems In Supermarkets

According to the Zengwa and Choga (2016) eximined the role of information and communication technology (ICT) in company' inventory management. Questionnaires, interviews and observations were used as research methods. The study exposed that the organizations' appropriation of ICT stock administration enhanced the stock capacity through constant preparing of exchanges, availability of data from a brought together database, profitability and productivity over every one of the offices. The device enabled tests and balances on all stock transactions. It additionally revealed that ICT helped in advancing standardized stock

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management actions, diminishing on work-load as nicely as on enhancing the nice for the inventory function. The investigation additionally demonstrated that however ICT has added to the powerful administration of inventories there were still ranges to be enhanced as they contrarily influenced the proficiency of the whole system.

According to the Mongare and Nasidai (2014) investigated the impact of information and communication technology on inventory control system in transport organization. Questionnaires were used as the main data collection Descriptive statistics analysis method was to analyze the gathered data. Stock manage is critical for every one of the partners. It has specific meanings to the quite a number stakeholders. Stock control has diverse results relying upon the planning, that is, whether the quick time period or long term affects are the ones in question. Inventory control system solutions do no longer continually require extra technology, dedicated personnel or staffing resources. Rather, current science infrastructure, together with equipment and computer systems with network connectivity can be used. Inventory manipulates and associated technologies guarantee real enhancements in the administration of acquirement, supplies administration chain. The association should be targeted in terms of their wants and using the proper technological know-how to reap goals, rather, than obtaining technology of stock manage due to the fact other organizations have it. Government interest in guaranteeing centered media transmission industry must be noticeable to decrease or expel avoidable expenses of actualizing stock control. According to the Chitiga and Choga (2016) studied the role of information communication technology (ICT) in inventory management of small to medium enterprises (SMES). A qualitative approach was used. Interviews and questionnaires were used in data generation. The study discovered out that the utilization of computer systems in inventory administration is constrained to very few functions. The SMEs are conscious significance of computers in stock administration yet however needs appropriate mastery and experience of executing sound stock guidelines and structures because of loss of financial sources and the consequences of ICT.

The main difficulties for terrible ICT adoption in stock control had been trouble the power in the nation and also loss of skills to use computer systems. There is want to teach SMEs body of workers in advancing ICT structures use. Recognition movements of significance of computer systems ought to be done. The authorities have to build up plans to encourage ICT utilization in SMEs. It must additionally installation a lawful structure and country wide body advance ICT structures in SMEs as properly as providing specialized help. According to the Shah and Shin (2007) examined relationships among information technology, inventory, and profitability. The study empirically shows that stock degrees have modified nonconsistently in the three areas (production, wholesale and retail sectors). Additionally, the outcomes verify the absence of an instantaneous hyperlink between IT funding and financial overall performance in all three sectors. But the outcomes show that stock execution assumes a huge intervening part in the assembling and retail segments, subsequently loaning help to the procedure model of IT venture at the area level of total. Together, these outcomes feature the distinctions among the producing, retail and wholesale sectors and have more extensive ramifications for sweeping statement than comes about got from single division ponders. These outcomes demonstrate that a tremendous influence (i.e. blessings) of IT funding on financial overall performance is found out not directly, and is interceded through a change in inventory overall performance. Investigating relationships which are set up at the firm stage at a better degree of aggregation assists to recognize consistent limits of connections and increase idea development.

Modern inventory control systems often rely upon barcodes and radio-frequency identification (RFID) tags to provide automatic identification of inventory objects. To record an inventory transaction, the system uses a barcode scanner or RFID reader to automatically identify the inventory object, and then collects additional information from the operators via fixed terminals (workstations), or mobile computers.

2.5.1 Enterprise Resource Planning

ERP is designed to replace paper-based systems by analyzing data from all areas of a company's resources. ERP covers all functions of a business such as purchasing, manufacturing, distribution, and inventory management. ERP is designed around a number of modules each of

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which can stand alone or combined with others that include finance, logistics, manufacturing, supplier management and human resources (Stevenson, 2007).

2.5.1.1 Vendor Managed Inventory

Inventory replacement decisions are centralized with upstream manufacturers or distributors in this JIT technique. It enables manufacturers or distributors to eliminate the need for customer to reorder, reduce or exclude inventory and stock outs.

2.5.1.2 Materials Resources Planning

This is a technique that assists in the detailed planning of production and its characteristics are that; it is geared specifically to assembly operations; it is a dependent demand technique and it is a computer-based information system. The aim of MRP is to make available either purchased or company manufacturing assemblies just before they are required by the next stage of production or for delivery.

2.5.1.3 Distribution Requirements Planning

Distribution requirements planning (DRP) is scheduling technique the controls inventory control and applies MRP principles to distribution inventories. It can also be considered as a method of handling replenishment of the stock in an organization.

2.5.1.4 Warehouse Management System

In recent decades, the rapid developments in technology have led to disruptive growth in the logistics section. Smart warehouses have emerged as a product of smart technologies, fueling a wave of an industry transformation that could drive dramatic changes. Going by the boom of e-commerce, e-commerce warehouses are among the most promising applications among various smart warehouses. According to State Post Bureau of PRC (2020), the volume of express delivery in the “Double 11” online shopping festival has reached over 3.9 billion packages, and the total volume of express delivery in 2020 exceeds 70 billion packages. Retail and technology giants are investing heavily in smart warehouses to process the explosive e-commerce logistics demand in a timely and cost-effective way. A warehouse management system (WMS) is a key part of the supply chain and primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, put away and picking.

2.6 Conceptual Framework

A conceptual framework is a research tool that purposes to develop an understanding of the situation under investigation. According to (Atkinson, 2006) a conceptual framework considers the theoretical and conceptual issues surrounding research work and form a coherent and consistent foundation that will underpin the development and identification of existing variables. This study seeks to establish the impact of IT on inventory management by supermarkets in Takoradi. The researcher identifies the independent variables in this study as the IT systems and the depended variables are the consequences these IT systems have on inventory management performance in supermarkets in Takoradi.

County as presented in Figure 2.1.

IT in Inventory Management by Supermarkets

Independent Variables **Dependent variables**

IT Systems **Inventory Management**

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Performance Areas

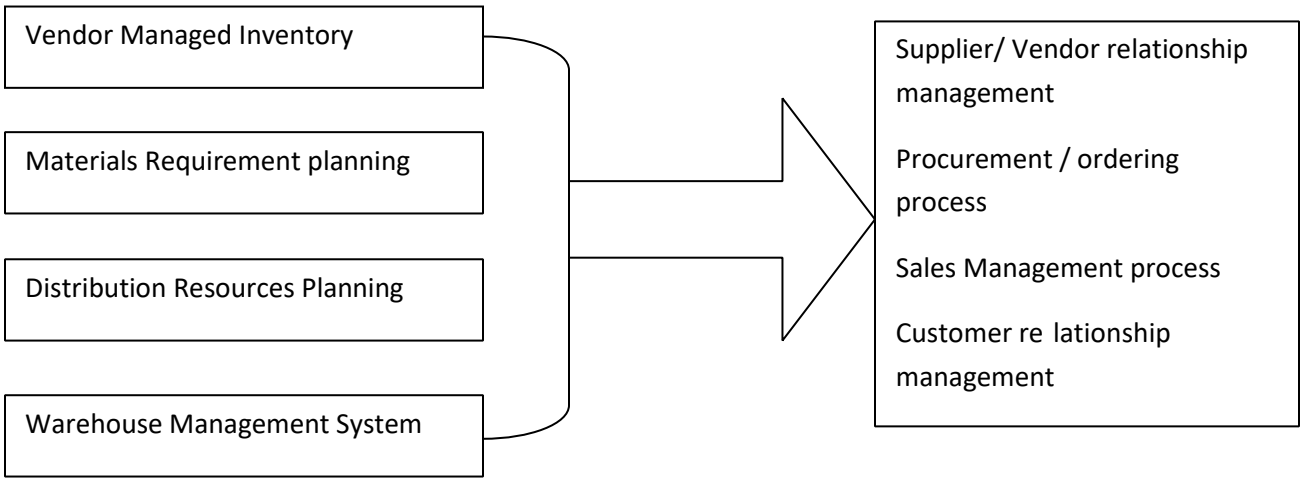

Figure 2.1: Conceptual Framework
Source: (Wuensch, 2004)

2.7 Challenges Of Computerized System Of Warehouse Management

Leonard (2019) stated that, any business that sells products needs a reliable method for inventory management. With bar codes, point-of-sale software and warehouse tracking, computerized inventory management systems make it easy for businesses to stay updated consistently, Leonard (2019). Leonard (2019), stated the following as challenges of challenges of computerized system of warehouse management.

2.7.1 Website Development Costs

Development of a website is the first step in the direction of e-commerce. It would engage organizational resources for planning, infrastructure built-up, hardware acquisition, software tools, domain registration, as well as graphics and content development.

2.7.2 Cost of Operating a Website

Once the website development is complete, the operating stage begins where one has to address to issues such as personnel training, data backup, creating linkages, monitoring ―hits, ‖ continuous updating, etc. Security Threat: Internet security is a broad term that refers to the various steps individuals and companies take to protect computers or computer networks that are connected to the Internet.

2.7.3 Viruses

Well-known causes of computer problems are viruses, or damaging programs that are introduced to computers or networks. Some viruses rewrite coding to make software programs unusable, while others scramble or destroy data. Many viruses spread quickly and operate subtly, so they may not be noticed until the damage has already been done.

2.7.4 Hackers

Hackers may hack password and attempt to over-whelm the system with information from the outside so that it shut down.

3.0 RESEARCH METHODOLOGY

This chapter covers approaches that were employed in the conduct of the research. It comprises of the research design, the study population, sample size, the sources of data,

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sampling technique, data collections and instruments and data analysis and procedure. It also briefly discusses profile of the organization.

3.1 Research Design

The researcher employed the quantitative approaches to data collection and analysis. The design adopted for the study is the use of qualitative analyses and quantitative analysis. The study adopted the qualitative analysis in order to rank people's expressions, impressions, perceptions and opinions in order to make a constructive analysis and quantitative analysis to quantify data that is countable. This will help save time when collecting data from the respondents. Because of these, the research approach used by the researcher was a descriptive approach. Descriptive research does not fit neatly into the definition of either quantitative or qualitative research methodologies, but instead it can utilize elements of both, often within the same study.

3.2 Population Of The Study

The entire staff of Anaji Choice Mart constitute the population for this study. The estimated number of staff is 150. The study focuses on management, stores, procurement, IT, unites/sections as the study population. That is, management ten (10), stores fifteen (15), procurement fifteen (15), IT ten (10) which gives target population of fifty (50).

3.3 Sample Size/ Sample Techniques

3.3.1 Sample Size

According to Jennings (2001), a sample is a small portion of the total population, the researcher used for the collection of data. The target population is centered on management and employees of Anaji Choice Mart. This refers to a part of the population chosen for a survey or experiment, Barlett (2001). A considerable number of staff of Anaji Choice Mart were selected to provide the necessary information to fulfill the purpose of the research. When determining sample size, the degree of confidence associated with estimate also needs to be taken into account. The sample size is made up of fifty (50) respondents, fifteen (15) for stores department, fifteen (15) for procurement department, 10 (10) for IT and ten (10) for management out of a population of 150 staff.

3.3.2 Sampling Technique

Susan (2010) purported that "sampling refers to the process of selecting a portion of the population to represent the entire population". It enables the researcher to study only a small portion of the population. The study used non-probability sampling method that is purposive sampling in collecting data from the study area. Purposive sampling also known as judgement, selective or subjective sampling is a sampling technique in which researcher relies on his or her own judgement when choosing members of population to participate in the study, Scott (2013). The primary consideration in purposive sampling is the judgment of the researcher as to who can provide the best information to achieve the objectives of the study. The researcher only goes to those people who in his opinions are likely to have the required information and be willing to share it. This type of sampling is useful when you want to construct a historical reality, describe a phenomenon or develop something about which only a little is known.

3.4 Source Of Data Collection

The tools the researcher used to collect data from the field was structured interview guide and questionnaire. The researcher prepared interview schedule/guide and questionnaire consisting of several specific questions used to collect information on the impact of information Technology on inventory management. The structured interview schedule was administered to management and staff of Anaji Choice Mart. The tools were appropriate because it enabled the researcher have in-depth knowledge about the impact of Information Technology on inventory

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management at Anaji Choice Mart, Takoradi. In the researcher's encounter with the respondents, the former asked specific and relevant questions that are related to the study.

3.4.1 Primary data

Primary data was collected through measurement, questionnaires and observations. The main source that was used for the collection of the primary data was the questionnaire. Questionnaires were administered to management and staff of Anaji Choice Mart, Takoradi. Management and staff gave response to the questionnaire in order to ascertain their views on the impact of Information Technology on inventory management.

3.4.2 Secondary data

Secondary data was collected for other purposes. Secondary data was obtained from relevant published and unpublished literature on service delivery, its application and other relevant materials. These included data from the institution of the case study that is annual bulletins and yearly financial statement of the company, books, journals, internet sources, library and other institutions of interest.

3.5 Data Collection Instrument

Questionnaire was used to collect data, due to the fact that questionnaires offer a number of options for respondents to choose from. It makes each participant enter his/her responses on the questionnaire, saving the researcher's time, compared to the time required to using other instrument (Amin, 2005).

3.5.1 Questionnaire

A questionnaire is a set of questions that is prepared to ask a number of questions and collect answers from respondents relating to the research topic. A number of questions usually in printed form were answered by the respondents. The forms had blank spaces in which the answers was written. Set of these forms were distributed to the groups and answers related to the topic were collected. When a questionnaire is properly structured and responsibly administered, they become a vital instrument by which be statements can be made about specific groups or population. Copies of questionnaire were administered to the management and staff of Anaji Choice Mart. The questionnaire used both open-ended and close-ended questions. The open-ended questions gave respondents options to choose whiles close-ended questions gave respondents the chance to feel free and write their answers without restrictions.

3.6 Method Of Data Analysis And Presentation

According to Emery and Couper (2003) raw data obtained from a study is useless unless it is transformed into information for the purpose of decision making. In view of this, qualitative approach was used in analyzing the data obtained from respondents. Descriptive statistics was employed to illustrate the demographic characteristics of the sample. Statistical tables were drawn based on percentages and averages. These were used to organize responses from retrieved questionnaires into tabular forms. Detailed descriptions and explanation of the phenomenon studied was obtained through qualitative analysis. Also, evaluative analysis produced values and figures to describe the facts and data were obtained and used. This facilitated easy understanding of interpretation derived from figures and values which were analyzed using the Microsoft Office Excel 2016.

4.0 DATA ANALYSIS AND DISCUSSION

This chapter presents the analysis and presentation of the data obtained from the questionnaires administered to respondents. The questionnaire was designed purposefully to obtain information on Impact of Information Communication Technology on Inventory management in Anaji Choice Mart, Takoradi. Fifty (50) questionnaires were administered and all fifty (50) were answered and retrieved from the respondents representing a 100% response rate

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and served as the basis for the analysis. The data was analyzed using descriptive statistics which is frequencies and percentages to explain the variable characteristics.

4.1 Demographic Characteristics Of The Respondents

This section presents the demographic characteristics of the respondents from whom the data were collected. It consists of gender, age, and years of experience in the organisation as shown in the table 4.1 below**.**

Table 4.1: Demographic Analysis of Respondents

Gender of Respondent		**Frequency**	**Percent**	**Cumulative Frequency**
Valid	Male	30	60	60
	Female	20	40	40
	Total	50	100	100
Age in years				
Valid	18-25	15	30	30
	26-35	20	40	70
	36-45	5	10	80
	46-60	10	20	100
	Total	50	100	
No. of years served				
Valid	Less than 3 years	5	10	10
	4 -9 years	10	20	30
	10-15years	15	30	60
	10years and above	20	40	100
	Total	50	100	
Level of education				
valid	WASSCE	5	10	10
	HND	20	40	50
	Degree	23	46	96
	Masters	2	4	100
		50	100	

Source: Field Survey (2022)

From the table 4.1 above, it was revealed that out of the total of 50 respondents, 60% of respondents were males while 40% of the respondents were females. This shows that the study sampled more males as compared to females. Also, with the age of respondents in Table 4.1, 30% of the respondents were between the ages of 18-25 years, 40% of the respondents were in the ages of 26-35 years, 10% were in the age range of 36-45 years, 20% of respondents were between 46-60 years. This indicate that respondents sampled were matured enough to provide the relevant information for the study variables.

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With respect to the position in the table 4.1, it was revealed that 10% of the respondents have served in the organisation for less than 3years, 20% of respondents has served between 4-9 years, 30% of the respondents has served between 10-15years and (40%) of the respondents has served above 10years. This implies that, respondents sampled have been in service for long to provide the necessary information for the study. From the table 4.1, the educational background of the respondents revealed that 10% of the respondents are Wassce certificate holders, 40% of the respondents were HND holders, 46% of the respondents have attained Degree in education and 4% of the respondents have attained their masters. This shows that, respondents sampled we educated and have better knowledge to provide relevant and reliable information for the study variables.

4.2 Analysis Of Main Data

4.2 1: The Extent of Information Technology Usage in the Inventory Management System at Anaji Choice Mart.

Table 4.2: The extent of information technology usage in the inventory management system at Anaji Choice Mart.

Statement	Percent Likert Response			
	Strongly Agree	Agree	Strongly Disagree	Disagree
Determining Order Quantity	60.0	30.0	0.0	10.0
Forecasting Demand	40.0	40.0	5.0	15.0
Stock Valuation/ Accounting	50.0	30.0	7.0	13.0
Stock Keeping Unit	70.0	25.0	0.0	5.0
Just in Time System (JIT)	40.0	30.0	10.0	20.0

Source: Field Survey (2022)

Table 4.2 Shows, the extent of information technology usage in the inventory management system at Anaji Choice Mart. From the questionnaires administered, 60% of the total of the respondents strongly agree to it that it helps in Determining Order Quantity, 30% also agree to this statement, while 10% disagree to it. Again, 40% strongly agree and 40% agree respectively to it that it helps in Fore Casting Demand respectively. While 5% strongly disagree and 15% disagree to the statement. Also, 50%, strongly agree and 30% agree respectively to the statement that it helps in Stock Valuation / Accusingly-divisively. While 7%, strongly disagree and 13% disagree to the statement respectively. Furthermore, 70%, strongly agree and 25%agree respectively to it that it helps in Stock Keeping Unit. Whiles 5% just disagree to this statement. Moreover, 40%, strongly agree and 30% agree respectively to the fact that it helps in Just in Time System recognize whereas 10%, strongly disagree and 20% disagree to the statement afore mentioned.

From this observation we can see that the information technology usage in the inventory man automatically identify is relevant.

4.2.2: Impact of ICT on Inventory Management Performance

Table 4.3: Impact of ICT on inventory management performance

Statement	Percent Likert Response			
	Strongly Agree	Agree	Strongly Disagree	Disagree
IT has enhanced information sharing with suppliers.	30.0	50.0	8.0	12.0
IT has improved the supplier relationships	32.0	60.0	0.0	8.0

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IT has enhanced streamlining of supply chain by removal of inefficient intermediaries	40.0	50.0	2.0	8.0
IT has made it possible to enter into long-term commitments with suppliers	50.0	40.0	0.0	10.0
IT has enabled tracking movement of stock units in the warehouse/stores	50.0	40.0	0.0	10.0
IT has enhanced provision of accurate inventory information to customers	35.0	25.0	10.0	30.0

Source: Field Survey (2022)

Table 4.3 shows the impact of ICT on inventory management performance. The responses on the extent to which IT has enhanced information sharing with suppliers at Anaji Choice Market showed that, 80% of the respondents strongly agree and agree to the statement while 20% strongly disagree and disagree respectively to it. Furthermore, out of the total questionnaires administered 92% of the respondents strongly agree and agree to the statement that IT has improved the supplier relationships, but 8% of the respondents disagree to it. In response to the statement whether IT has enhanced streamlining of supply chain by the removal of inefficient intermediaries, 90% of the respondents strongly agree and agree whereas 10% disagree. Also, in response to the question IT has made it possible to enter into long-term commitments with suppliers, 90% strongly agree and agree to the statement but 10% disagree to that statement. Findings on IT has enabled tracking movement of stock units in the warehouse/stores, 90% of the respondents strongly agree but 10% disagree. Finally, 60% both strongly agree and agree to the statement that IT has enhanced provision of accurate inventory information to customers, 40% of the respondents both strongly disagree and disagree.

4.2.3: Challenges Involved In Using It to Manage Inventory

Table 4.4: Challenges involve in using it to manage inventory

Statement	Percent Likert Response			
	Strongly Agree	Agree	Strongly Disagree	Disagree
Website Development Costs	50.0	50.0	0.0	0.0
Cost of Operating a Website	45.0	50.0	0.0	5.0
Viruses attack on information	59.0	39.0	0.0	2.0
Hackers tracking and jamming of information	76.0	24.0	0.0	0.0

Source: Field Survey (2022)

From table 4.4, 50%, strongly agree and 50% agree respectively to the statement that developing Website was Costive, while none disagreed with the statement. Also, 45% strongly agree and 50% agree respectively to it that the Cost of Operating a website is high, while 5% disagree with the statement aforementioned. Moreover, 59% of the respondents strongly agree and 39%agree respectively to viruses attacks on information, while 2% disagree with the statement. Finally, 76%, of the respondents strongly agree and 24% agree respectively to the statement that hackers can track and jam information, while none strongly disagree or disagree with the statement. In a nutshell, we can draw from the survey that, IT in inventory management has challenges in its usage.

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5.0 CONCLUSION

This chapter gives a summary of the findings of the study, the conclusions and the recommendations

Demographic characteristics of Respondents at Anaji Choice Mart: The summary of the research findings on the demographic or personal data of respondents. The study revealed that, more of them were males. Also, it was revealed that the respondents of the study were matured enough and they have been in service for long to provide the necessary information to the study. The study also discovered that most of the respondents were graduates who have worked with the organization for over 10 years and worked in the department who have a connection in the inventory, store and warehouse department in the organization. From the research, it is shown that the organization had workers who have acquired the necessary level of education and skills that can speed up work and development in the organization.

The extent of information technology usage in the inventory management system at Anaji Choice Mart: The objective of the study was to discover the extent of information technology usage in the inventory management system at Anaji Choice Mart. The data received from the respondents shows that the information technology usage in the inventory management system at Anaji Choice Mart is relevant in the following factors: determining order quantity, forecasting demand, Stock Valuation / Accounting, Stock Keeping Unit and Just in Time System (JIT).

Impact of ICT on inventory management performance: The second objective of the study was to discover the Impact of ICT on inventory management performance. And from the study it was discovered from the respondent that, ICT has impact on inventory management performance at the Mart. This signifies that ICT has an impact on inventory management performance.

Challenges involve in using ICT to manage inventory: The third objective of the study was to discover Challenges involved in using ICT to manage inventory. And from the study it was revealed from the respondents that, there are challenges in using ICT in the inventory management; and these includes website development costs, Cost of Operating a Website, Viruses and Hackers.

5.2 Conclusion

The use of ICT in inventory management performance is very key in this modern inventory taken. And from the study at Anaji choice Mart, we realized that using ICT to manage inventory is key for company's performance. Though it was discovered that there are challenges in it usage, it does not entirely dispute its significance for the growth of the company.
This implies that if measures are put in place to harness the challenges in ICT usage, it will improve in company's performance in inventory management.

5.3 Recommendations

The study recommends that supermarkets in Ghana should invest in modern technologies in order to integrate their inventory management systems. This would minimize communication costs and increase sharing of information which leads to improved efficiency and performance of supermarkets in Ghana. The study proposes the need for investing on appropriate mechanism that will facilitate the use of information technology baring any challenges in it usage in inventory management to boost performance. This will enable firms to understand the benefits of information technology in managing their inventory systems in order to create a need for adoption in the future.

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