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Exploring the value of ICT in warehouse management at the electricity company of Ghana, Takoradi

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Abstract
This study sought to examine the effectiveness of Information Technology in warehouse management using the Electricity Company of Ghana, Takoradi as a case study. A structured questionnaire was used to collect primary data from the respondents from ECG in Takoradi. Public procurement and supply chain officers and other staffs from various departments were employed for the study. The data collected were analyzed by using percentages, relative importance index, mean score and median. The findings revealed lack of technology is a key challenge of stock control in organization productivity in Electricity Company of Ghana at Takoradi. The organization does not have adequate inventory control measures in place. Training of staffs at the organization helped them to comply with the rules and regulations for stock control. The organization has adequate warehouse space to hold additional stock. The organization has stock control systems available. However, performance contracts are impediments to works. Also, internal and external controls are rarely monitored. It is therefore recommended that there should be proper distribution planning to enhance organizational productivity in the state corporations, especially ECG. The public organizations should have internal assessment when planning. The distribution planning should ensure timely delivery. The organization should ensure that the participatory planning is adequate. The study proposes the need for investigating on appropriate ways to increase formalization of information technology adoption in order to enhance adoption of modern technologies in inventory management as a tool to boost performance. The study concludes that Electricity Company of Ghana should invest more in modern technologies for example enterprise resource planning (ERP) systems in order to achieve system integration, minimize communication costs, enhance efficiency and increase sharing of information which will eventually lead to improved performance.

Keywords: examining, effectiveness, information, technology, warehouse, management, electricity, company, Ghana, Takoradi.

Introduction
Electricity Company of Ghana warehousing analysis points to a number of pressures compelling warehousing logistics professionals to investigate productivity solutions. Dynamic fuel costs have professionals up and downstream in the supply chain scrambling to find cost-cutting measures and higher operating efficiencies. Similarly, ever-rising square footage expenses are forcing enterprises to think critically about maximizing productivity within their current distribution footprint as opposed to bringing another site online. Large enterprises continue to seek to reduce the number of stocking locations and drive more productivity from the remaining distribution centers. (Aberdeen Group, 2013) [1].

These cost and space pressures outweigh the pressures to improve operations because of rising customer demands for faster and more tailored fulfillment. However, the best performing companies are focused on winning in 5. Assess Shelf and Space Utilization. "When trying to look for ways to improve the efficiency of your warehouse, a good plan is to understand the way that shelves and space are being utilized. The placement of shelves and containers, along with the traffic patterns and total design of the building ultimately affects the ability for you to utilize any space available. An increasingly vital part of any warehouse operation is an enterprise's ability to deliver on customer demands in a timely fashion. The ability to fulfill orders rapidly reflects on a warehouse's overall operations software, human capital, systems, equipment, etc. However, 58% of companies report that they have not been able to shorten their order fulfillment times since 2004 (Lizardo, 2009) [20].

However, to date in most organization, both analysts and managers have been relatively unsuccessful in convincing top management to give this area the due consideration that it logically deserves Inventories are basically stocks of resources held for the purpose of future production and/or sales.

Inventories may be viewed as an idle resource which has an economic value. Better management of inventories would release capital for use elsewhere productively; Hence Inventory control implies the coordination of materials accessibility, controlling, utilization and procuring of material. The direction of activity with the purpose of getting the right inventory in the right place at the right time and in the right quantity is inventory control and it is directly linked to productivity of the warehouse (Zhang & Vonderembse, 2012) [29].

Research on the improvement of warehouse and distribution center performance deduced that for many companies, improved warehouse and distribution center productivity remains a goal, not a reality. Although companies' top focus in warehouse improvement is cutting logistics costs, six out of ten respondents report that they have not been able to lower costs in the last two years. A majority of companies have also been unable to reduce customer order cycle times. However, a segment of companies has been able to reduce both costs and cycle times. These top performers are leveraging more technology, have better data visibility, and work harder at cross-training their staffs. Across the board, companies that are above average warehouse performers in their industry classified as Best in Class companies have been much more likely than their peers to have significantly lowered their warehousing costs in the last twenty-four months.

In Ghana, the size of industry, small, medium, and large scale, has a significant effect on both the numerical strength of staff and level of involvement in stock control of both raw material and the finished product. The type of inventory system in practice in any organization depends on many factors among which are economic stability of the place, infrastructural facilities available, transportation network and many more which are called constraints. For many companies the root cause of underproduction stoppages and high production cost could be easily traced to unscientific method of arriving at a general inventory policies and crucial inventory decisions. The situation is more acute in a developing country like Ghana, where the practical application of operation research techniques in industry and business enterprise is in its infancy. Moreover, the bulk of raw material inventory and the finish goods inventory used by companies in developing countries have to be imported from the industrial nations of Europe, America and Asia, which gave rise to higher cost of procurement and higher uncertainty in the availability of such basic raw materials (Ogbo & Ann, 2014) [22].

In Ghana, warehouse management have been impacted by Many business organizations spend a lot of resources installing warehouse management systems with the aim of minimizing their total operating costs, and enhance service delivery to customers. Many Institutions within West African Community have trouble resulting from operating losses and cash flow problems. Quite often, piles of obsolete stock are seen within the premises of these institutions, resulting in huge write offs eating into the bottom line of these institutions. Many a times, stock outs are also experienced resulting in high customer turnover and therefore low sales and poor service delivery to customers. Stock control normally becomes reportable issues (condition) and is always raised in the management letters to many institutions where very little attention is given in the management of inventories as records are inadequate thus the entire warehouse management system seems to have failed.

As such, this study sought to examine the effectiveness of Information Technology in warehouse management using the Electricity Company of Ghana, Takoradi as a case study.

Statement of the Problem

An increasingly vital part of any warehouse operation is an enterprise's ability to deliver on customer demands. However, 58% of companies report that they have not been able to shorten their order fulfillment times since 2004. Historical data and projections of future order volume and activity are being mined by companies to improve warehouse slotting and better plan labor workloads, staff training programs, and labor productivity metrics down to a task level.

Ghana has spent a lot of resources installing stock control systems with the aim of minimizing their total operating costs, and enhance service delivery to customers. However, many audits done reveal that there is an increased level of discrepancies in the manner in which the stock control systems are harmonized. On a number of occasions, there are cases of mis-statements and inaccurate and fraudulent records detected within the system thus resulting to losses of inventory within the warehouse. Quite often, piles of obsolete stock are seen within the premises of these institutions, resulting in huge write offs eating into the bottom line of these institutions.

Many a times, stock outs are also experienced resulting in high customer turnover and therefore low sales and poor service delivery to customers. Stock control normally becomes reportable issues (condition) and is always raised in the management letters to many institutions where very little attention is given in the management of inventories as records are inadequate (Lizardo, 2009) [20].

It is therefore against this background that this study seeks to examine the effectiveness of information technology in warehouse management on physical distribution in an organization in Ghana.

Objectives of the Study

The general objective of this study was to examine the effectiveness of information technology in warehouse management on physical distribution in an organization in Ghana, Takoradi. The specific objectives of the study were:

1. To determine the effect of stock control in organizational productivity in Electricity Company of Ghana.
2. To examine how distribution planning influence organizational productivity in Electricity Company of Ghana.
3. To determine the impact of Information Technology used in organizational productivity in Electricity Company of Ghana.

Research Questions

1. What is the effect of stock control in organizational productivity in Electricity Company of Ghana?
2. How does distribution planning influence organizational productivity in Electricity Company of Ghana?
3. What is the impact of Information Technology used in organizational productivity in Electricity Company of Ghana?

Significance of the Study

Warehousing is one of the important auxiliaries to trade. It creates time utility by bridging the time gap between production and consumption of goods. The effective and efficient management of Electricity Company of Ghana requires that all its constituent elements operate effectively and efficiently as individual facilities and together as an integrated whole corporate. Across the supply chains, warehousing is an important element of activity in the distribution of goods, from raw materials and work in progress through to finished products. It is integral part to the supply chain network within which it operates and as such its roles and objectives should synchronize with the objectives of the supply chain. It is not a stand-alone element of activity and it must not be a weak link in the whole supply chain network.

Overview of Methodology

The study used case study methodology as a research design. The study made use of both primary and secondary source of information to analyze the data. The primary data was the type of data that was collected from the field source. Questionnaire was the main instrument for data analysis.

Scope of the Study

To accomplish the objective of the study, the researcher concentrated in gathering data from Electricity Company of Ghana, Takoradi Branch. We chose the research setting due to its convenience and is cheap for the researcher to collect data. The data collected was checked and edited for clarity, legibility, relevance and adequacy. The data was cleaned, tabulated and thereafter weighted averages, mean and percentages was used to analyze the data. The results of the study were presented in frequency tables.

Limitations of the Study

As with many human endeavors, the study was without any shortcomings. Some of the requirements in the questionnaire was sensitive company information and as such, employees and employers were reluctant in answering questions which was critical in providing the necessary response for the study as they were of the view that providing the right answers affected them directly or indirectly.

The empirical study is limited to only ECG Company in Takoradi.

The research work is mainly constrained to quantitative study and very less work based on qualitative approach is performed.

Literature Review

Introduction

This chapter focuses on the review of literature on the use of IT in warehouse management. The review looks at the concept of warehouse, conceptual reviews, theoretical reviews, empirical review and ends with the conceptual framework.

Concept of warehouse

In the current business world, warehouse management as perceived by the industry today is not just managing within the boundaries of a warehouse, it is much wider and goes beyond the physical boundaries (Bartezzaghi, 2003). Saleemi (2003**)** indicate that container storage, loading and unloading are also covered by warehouse management today which is also part of Supply Chain Management (SCM) and demand good management. Even production management is to a great extent dependent on warehouse management. Efficient warehouse management gives a cutting edge to a retail chain distribution company. Decades ago, warehousing company managers often shopped for best of breed technology to manage their facilities and to track inventory. Systems were implemented with expectations that they would run effectively for fifteen years or more before requiring upgrades.

Today, the constant evolution of technology requires a different approach to purchasing warehouse management solutions. Instead of buying a single system rated "very best," managers are happy to purchase exactly what they need right now to evolve and expand their systems (De Boer, 2002). Interoperability and expansion are the key buzzwords right now, since facility managers must be ready to integrate their systems with clients and with other vendors. Overall, the trends affecting warehousing services currently stem from end user demands for speed, efficiency, and environmental awareness (Kouvelis, 2006) [17].

Theoretical Review

Agency Cost Theory

The growth in end-user computing (EUC) in organizations and its implications for the degree of centralization of the information services function have led to the need for a theory that will assist in the management of this process. The agency theory describes the development of ICT investment in organizations. The dramatic decline in the costs of hardware and the trend towards the increased power of microcomputers and minicomputers has enabled significant growth in ICT investment. This trend has implications not only for the management of EUC but also for the degree of centralization of the Information Systems (IS) function in organizations (Williamson, 2005) [26].

Therefore, there has been increased focus on the organizational issues surrounding EUC, as evidenced by senior IS executives' responses in several recent surveys. The key issues that arise in an agent-theoretic analysis of the management of ICT are an identification of the economic actors and their objectives, an analysis of how these objectives result in conflict, and an analysis of the nature of the resulting organizational costs. These issues must be considered in conjunction with the microeconomic and technological characteristics of the ICT environment to determine the optimal strategies for the management of ICT resources. (Williamson 2005) [26]. Eisenhardt (2011) [5] has articulated the usefulness of agency theory in analyzing managerial problems characterized by goal conflicts, outcome uncertainty, and programmed or team-oriented tasks. Many ICT activities fit this description, and it has been suggested that a large number of organizational problems in the management of ICT can be analyzed successfully in an agency context (Klepper, 2000) [14].

The design of effective control mechanisms for IS activities is particularly difficult, since the agency relationship occurs in a dynamic, rapidly changing environment and management practices have little time to stabilize (Nolan, 2003). An alternative approach would be transaction cost economics, an approach with similarities to agency theory in its emphasis on information and uncertainty (Williamson, 2005) [26]. However, as noted by Eisenhardt (2005) [5],

agency theory distinguishes itself from transaction cost theory by its inclusion of the notions of risk aversion and information as a commodity. This theory would hence well define the specific objective to establish the effects of technological resources on organizational productivity, and will support and better relate the variables to be discussed with the effects of warehouse management on organizational productivity.

Management Theory

Different theories have been forwarded to explain the concept of management by different researcher. According to the behavioral theory, management refers to the rule of game within the society/organization which configure individual behaviors, in so doing reducing the uncertainty of risks and transaction costs linked with each individual action. Management science theorists like Herbert and Newman, define management as the application of sophisticated quantitative mathematical techniques for solving managerial problems. Under this theory, an Organization is considered a decision-making unit and the main job of a manager is to make decisions and solve problems. It therefore assumes a mathematical model which is a representation of real-life situation.

Elsewhere, the term management refers to activities involved in the four general functions of a manager which recur throughout the Organization and are highly integrated. These activities are planning, co-coordinating, leading and controlling. It is therefore universal and focuses more on leadership skills.

Empirical Review

Effect of Stock Control on Organizational Productivity

Inventory Control is primarily about specifying the size and placement of stocked goods. Inventory management is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods. The scope of inventory Control and management also concerns the fine lines between replenishment lead time, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, and available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Balancing these competing requirements leads to optimal inventory levels, which is an on-going process as the business needs shift and react to the wider environment (Ghosh and Kumar, 2003) [7].

Rosenblatt (2007) argues that the cost of maintaining inventory is included in the final price paid by the customer. Good in inventory represent a cost to their owner; the manufacturer has the expense of materials and labour. The wholesaler also has funds tied up." Therefore, the basic goal of the manufacturers is to maintain a level of inventory that will provide optimum stock at lowest cost. Inventory management in its broadest perspective is to keep the most economical amount of one kind of asset in order to facilitate an increase in the total value of all assets of the organization human and material resources. Major objective of inventory management and control is to inform managers how much of a good to re-order, when to reorder the good, how frequently orders should be placed and what the appropriate safety stock is, for minimizing stock-outs. Thus, the overall goal on inventory is to have what is needed, and to minimize the number of times one is out of stock.

A study by Demetrio's (2010) on the Effect of Inventory Management on Firms performance states that: Managing assets of all kinds can be viewed as an inventory problem, for the same principles apply to cash and fixed assets. The tradeoff between ordering costs and holding costs characterizes the transactions approach to inventory management represented by the EOQ models of inventory developed many decades ago. In the recent years, as the field of operations management has developed, many new concepts have been added to the list of relevant inventory control topics.

These more management-oriented concepts include the materials requirements planning systems (MRP) Just-In-Time (JIT) and ERP methods while another emerging stream of studies postulate that the characteristics of a firm's demand and marketing environments also play an important role. In determination of optimal corporate inventories, notwithstanding the theoretical and practical short comings inherent in these concepts and techniques, their application in real business life should have an effect on firm's performance (Koh, 2007). Building on this situation, the purpose of this study is to investigate the relationship, if any, between inventory management practices and financial performance of Electricity company of Ghana. Inventory Management is viewed as a significant blend of the key performance determinant variables in sugar industry. Inventory management and control are crucial to a firm because mismanagement of inventory threatens a firm's viability (Sprague, 2011). Too much inventory consumes physical space, creates financial burden, and increases possibility of damage, spoilage and loss. (Womack, *et al*, 2010)

Distribution planning influence organizational productivity

Government agencies need to examine and, where appropriate, adopt contemporary planning and delivery strategies such as alliance contracting (simple alliances; design, construct and maintain alliances; structured alliances; and programs of alliances). approaches include sole invitees, early contractor involvement in planning, multi-agency bundling, end-to-end plan bundling, design consultancies, public private partnerships (PPPs), and project management consultancies.

Contracts can be well managed by the foundation of a successful plans and spend intelligence system that is standardized product and vendor coding, coupled with the automatic capture, processing, and presentation of information for use by decision makers, Johnson (2009), this provides the capacity to focus on the activity, performance standards, and results achieved in respect to the work involved in the planning for, the establishment and subsequent management and use of supply arrangements. This helps to ensure the organization achieves maximum spending leverage in supply negotiations. It also ensures consistent and thorough market analysis, costing measures, and compliance methods are applied to each expenditure category (Jang, 2006) [11].

In Ghana, the government has moved forward to ensure that all its agencies ensure that sufficient expertise will be introduced to assist professional/technical staff to properly

undertake the various phases of planning. The main areas to target are the scoping of requirements, the analysis of supply markets and contract management. Most agencies also reported that the procurement capability of these service delivery and technical/professional areas was sufficient to produce an adequate or satisfactory result (Lizardo, 2009) [20].

A report by the Lopez (2013) distribution planning is an existing requirement of the governments management policy. It is a methodology for determining how to position, resource, and operate the agency's functions to best support service delivery. The purpose of a executive management as an organizations' authority receiving the plans is to: review the plans in terms of quality and completeness, enable independent advice, guidance and support to agencies in establishing and maintaining appropriate procurement capability and performance management systems, allow a central authority to take a high level view of Government business to identify and prioritize opportunities for more agency collaboration, and improve business outcomes through more active management of common areas of expenditure, and contribute to a consolidated annual report to Government on the capability and performance of the sector's procurement.

Governments have organized procedures, resources and systems to consistently employ and align all plans to strategies those related to business objectives. Overall, enterprises employing these approaches in a consistent and integrated method outperformed peers in cost savings, expenditure under management, compliance, supplier integration, and greater contribution to enterprise value. This is possible when the plans have been well orchestrated with the addition of internal and external involvement as the government tries to meet its budgeted public expenditure. Actually, procurement professionals can provide policy makers with valuable information in their planning mainly pre-procurement cycle phases, including needs assessment, and procurement program authorization and appropriation. The information is critical in planning as a major source of feedback for budgetary adjustment, improvement, or reform (Thai, 2009).

Impact of Information Technology used in organizational productivity

Warehouse Management Systems (WMS) have been available since the earliest computer systems and were allowed simple storage location functionality. Today WMS systems can be standalone or part of an Enterprise Resource Planning (ERP) system and can include complex technology such as Radio Frequency Identification (RFID) and voice recognition. However the basic principle of the warehouse system has remained the same, which is to provide information to allow efficient control of the movement of materials within the warehouse. The implementation of a WMS is often complex. Project planning is critical to the success of any WMS implementation. The project requires warehouse resources to collect data on the physical warehouse, materials, inventory as well as defining the strategies required to operate the warehouse. There is the added challenge of implementing the system whilst still operating the warehouse (Kerridge, 2006).

The complexity of a WMS implementation varies with every business. The physical dimensions and characteristics of each item in the warehouse are required to be collected and entered into the new system. According to Hamah (2001), capacity calculations require the physical size and weight of the item as well as the dimensions of all the storage bins or racks in the warehouse. The storage options for each item are required, for example if the item can be stored separately, in box, pallet or if it can be stacked. Each item must be reviewed to see if it is physical limitations on its storage, such as requiring refrigeration. Hazardous material information needs to be collected so that the item is not stored in certain areas. This information is only part of the requirements of the WMS implementation. The system requires decisions or configuration to be made on how items are to be placed or removed from the system, in what order, for what types of materials and what methods of placement and removal should be used (Hamzah, 2001). The implementation requires significant input from the resources that operate the warehouse on a day to day basis and this can be a strain on warehouse operations. A successful project will recognize this fact and ensure that the key personnel required for the implementation are given adequate back up so that warehouse operations do not suffer (Gupta, 2003).

Research Methodology

Introduction

The previous chapter highlighted on literature, so this chapter sought to emphasis the techniques employed in carrying the study that is data collection mechanization and the statistical tools employed in analyzing the date. It is a broad framework that states the total pattern of conducting research project. Here, the researcher outline the main sources of data which includes all relevant issues such as the population of the study sample of the study and data collection techniques.

Research Design

The study employed a design research which helped to obtain effective warehouse management in physical distribution in Electricity Company of Ghana, Takoradi. The study adopted a descriptive survey design because it involved examining and collecting of evidence from a small number of people selected from the population and reporting the findings just the way they were. A case study research design was chosen because it was easier to collect accurate, objective information from selected area (Moses, 2008).

Population of the study

A population is a group of individuals, persons object of items from which samples are taken for measurement (Saunders *et al* 2009). Target population is the entire group of individuals about whom you want to gather information. To design a useful research project there is the need to be specific about the location and size of your target population. Based on this the target population of the study was made of procurement officers, warehouse management and accountants of the Electricity Company of Ghana, Takoradi. The population of this study totaled up to 100 employees in top level, middle level management and supervisory management levels in Electricity Company of Ghana.

Sample Technique and Sample Size
A sample size of 60 employees in Electricity Company of Ghana selected from different departments with random sampling, a research ensured representativeness of the sample size because sufficient probability was built into the sampling strategy (Welman and Krugler, 2012). Sample size was 30% of the total population

Table 1: Sample Size

Levels	Population (N)	Sample (n)
Middle management	25	14
Supervisory Management	75	46
Total	100	60

Data Collection and Method
Primary data collection procedure was used in this study as it gave the raw information. The data was obtained by the use of self-administered questionnaire with closed ended questions. This gave the actual data that was obtained for the purpose of the research study.

Data Analysis
The data collected was checked and edited for clarity, legibility, relevance and adequacy. The data was cleaned, tabulated and thereafter weighted averages, mean and percentages was used to analyze the data. The results of the study were presented in frequency tables.

Organizational Profile – Electricity Company of Ghana (ECG)
ECG was incorporated in 1963 and became a limited company when shares were first sold in the firm in February 1997. However, the company is still owned by the government.
The enactment of the Electricity Corporation Decree, 1967 (NLCD 125) and the repeal of the Electricity Act, established the Electricity Corporation of Ghana (ECG). For the next two decades, ECG was to remain the entity solely responsible for electricity supply and the distribution networks nationwide. In 1987, the corporation's sphere of operation was limited to the southern parts of Ghana which also had the greater concentration of customers.
The first government-sponsored public electricity supply in the country commenced in 1914 at Secondi. It was operated by the Railway Administration which extended supply to Takoradi in 1928. Meanwhile, the Public Works Department had commenced a limited Direct Current (DC) supply in Accra during 1922-this was immediately followed by a large Alternating Current (AC) project which commenced in 1924. A small plant consisting of three horizontal single cylinder oil-powered engines was installed in Koforidua in 1925. Also in 1926, work commenced on providing power to Kumasi.
During the period 1929-30, limited electricity supply was extended to Tamale until a new AC plant was installed in 1938. The next power station to be established was Takoradi which came into being in 1932. Subsequent to its takeover by the Electricity Department from the Public Works and Railways on 1st April, 1947, a power station at Swedru was commissioned in 1948. This was followed by the installation of generating plants at Oda, Dunkwa and Bolgatanga in 1948.
The Tema power station was commissioned in 1956 with a 3 x 650 kW generating set. The Ho power station followed in 1957. From 1961-64, the Tema Station was extended to a maximum capacity of 35,298 kW, thus, making it the biggest single diesel-powered generating station in Africa.
Ghana's main electricity power source, the Akosombo Dam has a total Plant capacity of 1020 megawatts. The country has constructed a 330 megawatts thermal plant in Takoradi to supplement its power supply needs. A 560 megawatts Sunon Asogli Power is under construction. The first phase of 200 megawatts has been completed. There is an ongoing project to build another 400 MW hydropower plant at the Bui dam in the Brong Ahafo region.

Vision
To be among the leading electricity distribution companies in Africa in terms of quality, safety and reliability

Mission
To provide quality, reliable and safe electricity services to support the social-economic growth and development of Ghana. The company has over the years been able to carry out this mission notwithstanding the occasional challenges we encounter**.**

Core values
1) Quality service delivery
2) Team work
3) Safety consciousness
4) Quality, reliable and safe power supply
5) Competency and motivation of staff
6) Professionalism
7) Integrity
8) Transparency

Achievement
To achieve customer satisfaction by providing service which fully meets the expectation of our customers

Challenges
1) The power sector faces host of challenges including inadequate power supply infrastructure that requires huge investment, over-reliance on hydro and gas, inadequate access to electricity, high cost of fuel for electricity generation, transmission and distribution losses.
2) The transmission system is in poor condition -outdated transmission equipment can become over-loaded during periods of high demands.

Population and growth
The population of this study totaled up to 100 employees in middle level management and supervisory management levels in Electricity Company of Ghana

Location and Size
A sample size of 60 employees in Electricity Company of Ghana selected from different departments with random sampling, a research ensured representativeness of the sample size because sufficient probability was built into the sampling strategy (Welman and Krugler, 2012). Sample size was 30% of the total population.

Roles in relation to warehouse management
1) Stock taking
2) Receiving inventory

3) Issuing out inventory s in when necessary
4) Printing of waybill and requisitions

Activities of Electricity Company of Ghana

1) To transmit, supply and distribute electricity
2) To purchase electricity energy in bulk (from the Volta River Authority)
3) To construct, reconstruct, install, assemble, repair, maintain, operate or remove sub-transmission stations, electrical appliances, fitting and installation

Presentation of Findings, Analysis and Discussions

Introduction

This chapter is designed purposely to present, analyse and discuss the findings of the study based on the information's gathered from the field. It is the most crucial part of any research. It involves interpretation of data gathered through the use of analytical and logical reasoning to determine patterns, relationship or trends.

Response Rate

Out of the 60 questionnaires that were administered, 46 questionnaires were filled and returned successfully. This represents a response rate of 76 percent which was considered sufficient forming a good representation of the whole population. This response rate is well above the 50 percent recommended by (Mugenda & Mugenda, 2003).

Table 2: Response Rate

Gender	Percentages%	Gender
Responded 46	76	Responded 46
Not responded 14	24	Not responded 14
Total 60	100	Total 60

Source: Field Data (2021)

General Information

Gender distribution

Table 3: Gender Distribution

Gender	Frequency	Percentages%
Male	24	52
Female	22	48
Total	46	100

***Source*: Field Data (2021)**

From the above study in the table 4.2, 52% of the respondents were male and 48% of the respondents were female. This is an indication that both genders were fairly involved in this research.

Age Distribution

Table 4: Age Categorization of Respondents

Age	Frequency	Percentages%
18-25	5	11
26-35	20	43
36-50	11	24
Above 51 years	10	22
Total	46	100

Source: Field Data (2021)

From table 4.3 above the age categorization of respondents were such that 18-25 years respondents represented by (11%) in the category , 20 respondents were (43%) with the age between 26 – 35 years were representing the category, 11 respondents (24%) were age between 36 – 50 years and 10 respondents (22%) were age of above 51 years old and above. This implies that most of the workers working in Electricity Company of Ghana were aged between 26-35 years old hence it reveals that respondents were well distributed in terms of their age thus the study involved respondents whose ages were well distributed across the country.

Educational Level

Table 5: Level of Education

Educational Level	Frequency	Percentages%
Primary level	8	17
Certificate level	6	13
Diploma	20	43
Degree and above	12	27
Total	46	100

Source: Field Data, 2021

From the study as shown in table 4.4 on education levels of respondents, it was revealed that 8 respondents representing (17%) were form four level, 6 representing (13%) were certificate level, 20 representing (43%) were having diploma and 12 representing (27%) were having degree. This showed that most of workers in the Electricity Company of Ghana have attained at least diploma level hence they increasing the effectiveness warehouse management on physical distribution in a service organization.

Effect of Stock Control

Table 6: Challenges of stock control

Effects	SA 5	A 4	N 3	D 2	SD 1	$\sum f_i$	$\sum f_i w_i$	$\sum f) \sum f_i w_i$
Delays in delivery of goods leading to insufficient stock	20	10	8	2	6	46	174	3.7
Lack of technology	30	6	4	3	3	46	195	4.2
Lack of training	8	4	8	16	10	46	122	2.6
Weak management system	6	4	15	11	10	46	123	2.7
Conflict of interest	10	20	6	6	4	46	164	3.5

Source: Field Data (2021)

From the data shown on table 4.5 it showed that lack of technology had a mean of 4.2 and was given more weight, delays in delivery of goods leading to insufficient stock at 3.7, conflict of interest with mean of 3.5, weak management system with a mean of 2.7 and lack of training a mean of 2.7. This shows that lack of technology is one of the

challenges of stock control in organization productivity in Electricity Company of Ghana.

Influence of Distribution planning in an organization

Table 7: Influence of Distribution in an organization

Effects	SA 5	A 4	N 3	D 2	SD 1	$\sum f_i$	$\sum f_i w_i$	$\frac{\sum f_i w_i}{\sum f)}$
1. Measuring the quality of warehouse performance is difficult	8	10	20	2	6	46	150	3.2
2. The organization has made interZXnal assessment when planning	4	3	30	6	3	46	107	2.3
3. The distribution Planning has ensured timely delivery	16	10	8	4	8	46	170	3.7
4. The organization ensure the participatory planning is made	20	4	15	1	6	46	169	3.6
4. The organization has made external assessment when planning that would affect organizational productivity	3	20	6	9	8	46	139	3.0

Source: Field Data (2021)

From the data shown on table 4.5 it showed that the distribution planning has ensured timely delivery had a mean of 3.7 and was given more weight, the organization ensure the participatory planning is made at 3.6, measuring the quality of warehouse performance is difficult with mean of 3.2, the organization has made external assessment when planning that would affect organizational productivity with a mean of 3.0 and the organization has made internal assessment when planning a mean of 2.3. This shows that the distribution planning has ensured timely delivery of stock control in organization productivity in Electricity company of Ghana.

Impact of Information Technology used

Table 8: Impact of Information Technology

Effects	SA 5	A 4	N 3	D 2	SD 1	$\sum f_i$	$\sum f_i w_i$	$\frac{\sum f_i w_i}{\sum f)}$
1. IT has enabled tracking movement of stock units in the warehouse/stores	30	10	2	2	2	46	200	4.3
2. IT has made stock taking in the warehouse easier	20	16	4	3	3	46	125	2.7
3. IT has provided greater data accuracy on inventories	10	6	8	16	20	46	150	3.2
4. IT has reduced pilferages of inventory	10	4	15	11	6	46	139	3.0
5. IT has improved order processing	6	20	10	6	4	46	156	3.3

Source: Field Data (2021)

From the data shown on Table 4.7 it showed that IT has enabled tracking movement of stock units in the warehouse/stores had a mean of 4.3 and was given more weight, IT has improved order processing at 3.3, IT has provided greater data accuracy on inventories with mean of 3.2, IT has reduced pilferages inventory with a mean of 3.0 and it has made stock taking in the warehouse easier a mean of 2.7. This shows that IT has enabled tracking movement stock units in the warehouses/stores in organization productivity in Electricity Company of Ghana.

Discussion

This study finding to survey questions asked with a view to establish the influence of stock control on organizational productivity in state corporations in Ghana with Rotich (2011) who offers that other issues affecting stock control in warehouse management have to do with core objectives of stock out reduction. The major objective of inventory management and control is to inform managers how much of a good to re-order, when to reorder the good, how frequently orders should be placed and what the appropriate safety stock is, for minimizing stock-outs. Thus, the overall goal on inventory is to have what is needed, and to minimize the number of times one is out of stock.

The study is in tandem with literature review by Maanzo (2013) who established that distribution planning influence organizational productivity. The government agencies need to examine and, where appropriate, adopt contemporary planning and delivery strategies such as alliance contracting (simple alliances; design, construct and maintain alliances; structured alliances; and programs of alliances) approaches include sole invitees, early contractor involvement in planning, multi-agency bundling, end-to-end plan bundling, design consultancies, public private partnerships (PPPs), and project management consultancies. This provides the capacity to focus on the activity, performance standards, and results achieved in respect to the work involved in the planning for, the establishment and subsequent management and use of supply arrangements. This helps to ensure the organization achieves maximum spending leverage in supply negotiations. It also ensures consistent and thorough market analysis, costing measures, and compliance methods are applied to each expenditure category.

IT adoption has influenced sharing of information, managing supplier relationship and enhancing procurement and ordering processes. These findings are consistent with a study by Otiso, Chelangat & Bonuke (2012) who concluded that ICT adoption led to improved information sharing.

Summary of Findings, Conclusion and Recommendations

Introduction

The final chapter of this study summarizes the findings, conclusion and recommendations. This study was conducted to find out the use of information technology in warehouse management and to suggest some of the ways internal control measures can be improved.

Summary of Findings

From the descriptive statistics, the study established that majority of respondents were found to highly agree that the lack of technology is one of the challenges of stock control

in organization productivity in Electricity Company of Ghana There is need for more time to be taken in the processes within the warehouse. The organization does not have adequate inventory control measures in place. The impact of training as enhanced by the organization has been established in compliance with the rules and regulations. The warehouses under management of the organization are frequently evaluated. The organization has adequate warehouse space to hold additional stock. The organization has stock control systems available. The performance contracts are an impediment to works. Internal and external controls are rarely monitored. The workforce needs external guidance with regard to stock control.

Reduction of stock outs low but positive productivity with a majority affirming to less than 30% in the last five years A similar trend was recorded in cost reduction, customer satisfaction recorded low but positive productivity with a majority affirming to less than 30% and timely Purchases-stock out reduction further low positive growth. It can be deduced from the findings that key organizational productivity indicators have lowly improved as influenced by among other warehouse management attributes, stock control and distribution planning. Both the independent variables were found to have a statistically significant association with the dependent variable at ninety-five level of confidence.

Analysis of variance was further done and it was established that there was a significant mean.

Descriptive analysis results showed that majority of respondents were found to highly agree that measuring the quality of warehouse performance is difficult in the organization. The organization has made internal assessment when planning. The distribution planning has ensured timely delivery. The organization ensures the participatory planning is made to a low extent. There is need identification and is well evaluated when planning. The organization has made external assessment when planning that would affect organizational productivity to a low extent. The respondents disagreed that the staff is well trained in the existing IT services provided. The performance contracts are an impediment to works. The organization does not deviate from the plans. The resistance to the plans by various departments does not affect performance.

Conclusions

The study established that stock control influence organizational productivity in state corporations in Ghana. The regression coefficients of the study show that stock control has a significant influence on organizational productivity in state corporations. This shows that stock control has a positive influence on organizational productivity in state corporations. Further, the study revealed that the variable statistically and strongly correlated to organizational productivity in state corporations.

Additionally, the study found out distribution planning influence organizational productivity in state corporations in Ghana.

The study concludes Electricity Company of Ghana should invest more in modern technologies for example information communication technology in order to achieve integration, minimize communication costs, enhance efficiency and increase sharing of information which will eventually lead to improved performance.

Recommendations

The study recommends for the enhancement stock control and the workforce needs external guidance with regard to stock control. There is need for more time to be taken in the processes within the warehouse. The organization should have adequate inventory control measures in place. The impact of stock control training as enhanced by the organization should be well established in compliance with the rules and regulations. The study recommends for the proper distribution planning enhancing organizational productivity in the state corporations. The organization should have internal assessment when planning. The distribution planning should ensure timely delivery. The organization should ensure that the participatory planning is adequate. There is need identification and well evaluated when planning. The study proposes the need for investigating on appropriate ways to increase formalization of information technology adoption in order to enhance adoption of modern technologies in inventory management as a tool 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.

Suggestions for further Studies

Due to constraints highlighted, this study could not exhaust all the factors of warehouse management on the organizational productivity in state corporations in Ghana. Therefore other factors affecting the organizational productivity in Ghana need to be established. A review of literature indicated that there has been limited amount of research on the organizational productivity in the Ghana context. Thus, the findings of this study serve as a basis for future studies on effective warehouse management on physical distribution in a service organization in Electricity Company of Ghana (ECG).

References

1. Aberdeen Group. The Warehouse Productivity Benchmark Report: A Guide to Improve Warehouse and Distribution Center Performance. Aberdeen Group, Inc. 260 Franklin Street Boston, Massachusetts 02110-3112 USA, 2013.
2. Aminoff DJ. Technological innovation and the Theory of the Firm: The Role of Enterprise – level Knowledge, Complimetaries and Dynamic capabilities. In N. Rosenberg and Bartezzaghi, S. (2003). “National and International Perspectives on the Regulation of Public Procurement: Harmony or Conflict?” In Arrowsmith, S. & Davies, A. (Eds.), Public Procurement: Global Revolution 3-26). London, UK: Kluwer Law International, 2002.
3. De Boer JB. Gaining and Sustaining Competitive Advantage. Addison – Wesley Publishing Company, New York, 2002.
4. Dimitrios Koumanakos P. The effect of inventory management on firm performance. International Journal of Productivity and Performance Management, 2010, 12-20.
5. Eisenhardt KM, Martin JA. Dynamic Capabilities: What Are They? Strategic Management Journal. 2011;21(10/11):1105-1121.

6. Everett BM. Linking warehouse complexity to warehouse planning and control structure: An exploratory study of the use of warehouse management information systems. International Journal of Physical Distribution & Logistics Management [online]. 2001;32(5):381-395.
7. Ghosh M, Kumar H. Supply Network Strategies: John Wiley & Sons Ltd., 2007.
8. Hamzah C. A performance evaluation model for order picking warehouse design, Computers & Industrial Engineering. 2001;51(2):335-342.
9. Hopkins TK, Martin B, Humphries M. The Power of Relational Responsibility. Electronic Journal of Business Ethics and Organization Studies. 2008;16(2):22-27.
10. Institute of economic affairs; Budget for 2014/2015: Balancing financing concerns while responding to spending inefficiencies, 2014.
11. Jang A. Procurement Challenges in The South African Public Sector; Department of Business Management; University of South Africa (Unisa), 2006.
12. Johnson PF, Leenders MR. Building A Corporate Supply Function [Journal] // Journal of Supply Chain Management. 2008;44(3):39-52.
13. Kelman S. Procurement and Public Management: The Fear of Discretion and the Quality of Government Performance. Washington, DC: The AEI Press, 2010.
14. Klepper N. Ghana Economic Report: Creating an Enabling Environment for Stimulating Investment for Competitive and Sustainable Counties, 2000.
15. Kerridge W. www.klr.org accessed 20th February 2015
16. Kirkpatrick D. Evaluating Training Programs. Berrett-Koehler, 2004.
17. Kouvelis M. qualitative and quantitative research design. Michigan University Press, 2006.
18. Kamaa B, Allains N. Procuring for the future. Warehouse management National Action Plan: Cambridge Education Press, UK, 2012.
19. Larson C. Purchasing Management; Chalmers Department of Technology Management and Economics; Published by Elpida Memory Inc, 2004.
20. Lizardo J. International Control on Organizational assets in Kenyan Parastatals. Kisumu. Kenya: East Africa Union Internal Control Seminor, 2009.
21. Mugenda OO, Mugenda AG. Research Methods Qualitative and Quantitative Approaches. African Center for Technology Studies, ACTS press, Nairobi Kenya, 2008.
22. Ogbo Ann. The Impact of Effective Inventory Control Management on Organizational Performance: A Study of 7up Bottling Company Nile Mile Enugu, Nigeria. Mediterenean Journal of Social Sciences, 2014.
23. Saleemi B. Regulatory Policy and the Road to Sustainable Growth, 2003.
24. Sprague. Procurement Processes and Performance: Efficiency and Effectiveness of the Procurement Function. Department of Procurement and Logistics Management, Makerere University Business School, 2011.
25. Thai V. Public Procurement and Disposal General Manual. Government Press, Nairobi, Kenya, 2009.
26. Williamson SAI. Public procurement and corruption in Bangladesh: Confronting the challenges and opportunities. Journal of Public Administration and Policy Research. 2005;2(6):103-11.
27. Public Procurement Authority. Public procurement: Lessons from Ghana, 2010.
28. World Bank. Theory of Change: A Primer on Theory of Chage. New York: The Rockefeller Foundation, 2012.
29. Zhang D, Vonderembse J. Explicating Dynamic Capabilities: the nature and micro foundations of (sustainable) enterprise performance. Strategic Management Journal. 2012;28:1319 -1350.