

## **EFFECT OF THE CHALLENGES FACING USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY ON INVENTORY MANAGEMENT AMONGST BREWERIES IN NIGERIA**

Olusegun Timothy ODESOLA, Grace Oluyemisi AKINOLA

Department of Management and Accounting, Obafemi Awolowo University, Ile-Ife, Nigeria

**Abstract:** Information and communications technology (ICT) in the recent times has become a viable strategic policy option adopted by many businesses in order to compete favourably in a competitive and dynamic ICT driven market. This strategic move by business organizations is being hindered by some challenges which has invariably reduced the benefits accruable from ICT deployment for business operations especially in the inventory management. The paper identified challenges facing the use of ICT for inventory management by firms in the Nigerian Brewery industry. Other objectives of the paper are to x-ray how these challenges had impacted on the inventory management in the Nigerian Brewery industry, the effect of these challenges on customers' satisfaction, relationship between these challenges and inventory costs incurred by firms in the industry, and to suggest appropriate solutions. Primary data formed the methodology of the study. It was established during the field survey that challenges facing the use of ICT had impacted negatively on the performance of inventory management in the Nigerian brewery industry during the period under study. It was also revealed that the cost of software was a major challenge in the industry and that the identified challenges had significant effect on customers' satisfaction of the firms in the Nigerian brewery industry.

**Keywords:** Inventory, Performance, Efficiency, ICT Challenges, Inventory Management System.

### **1. Introduction**

It is conspicuous known fact that inventories occupy the greatest strategic place in the arrangement of working capital of most commercial enterprises; likewise firms in the brewery industry are not an exception. Inventories constitute the major element of liquid assets in nearly all business ventures. Considering the scope of venture capital, managing inventory is seen as a major difficulty to the firms in the brewery industry because close to 67% of the current assets of firms in the industry are being seized in inventories (Mathur, 2010). The revenue from inventory is a principal determinant of the turnover of working capital of business organizations and the firms in the Nigerian brewery are not an exception. It is

therefore quite expected that inventory which helps in making the most of turnover occupies the most substantial place among current assets.

Momanyi & Sanewu (2014), while writing on information communications and technology's influence on inventory control system, submitted that in present-day's business setting, both small and medium scale industries now depend on computer based systems for managing their inventories. Without doubt, purchase and deployment of an automated inventory tracking system might be an extravagant use of financial assets for certain paltry industries like comfort stores, boot stores, or plant sales outlet. Tracking inventory electronically has developed as a vital constituent of business approaches directed on snowballing output and sustaining competitive edges for organisations working in businesses that are characterised by large volume revenue of natural resources and/or refined goods.

Sound and flexible inventory management is germane to the successful operations of any manufacturing outfit. In all manufacturing industries, like firms in the Nigerian brewery, inventory management could be likening to the heart of human being. Inventory management denotes appropriate techniques put in place to manage raw materials, work-in-progress as well as finished goods to minimise cost in a bid to achieve the set organisational goals and objectives. Inventory is resources of an organisation that are being kept by the organisation for future use. Therefore, as Itod, Maji and Abdu (2010) posited, managing this asset is an indispensable component if an organisation will continue to exist, hence favourable procedures of safeguarding this resource in order to use it at the correct time, right place and accurate quantity must be put in place. This is because massive amounts of money have been invested on inventory which may result in the serious scarcity of funds for other investments in the manufacturing sector of most economies.

Information and communications technology (ICT) is referred to as a general term that embraces all cutting-edge technologies in manipulating and communicating information (Musa, 2013). Hence, the deployment of ICT to manufacturing activities will boost corporations' competence and its competitive advantage, enhanced conversation, consumers' satisfaction, cost savings and complementing organisations' expansion and achievements (Vu, 2004).

Africa has been reported to have an end user market of more than one billion population of beer consumption, average Gross Domestic Product gain of 5% up to 2020 and 9 liters as beer consumption per capita (vs. 25 liter peer average) (Olawale, 2014). It is clear that the growth of beer market in the continent is doubtless credible. This type of market will be host to many brewery firms as being witnessed. Also, Olawale (2014) said that of all the countries in Africa, Nigeria is the focus of all prospective investors as far as beer consumption is concerned being a heavily populated nation and largest (still growing) economic life in Africa, with considerable latent for a double-digit development. Enormous markets dominated by products and services designed for the general consumer, beer consumption deficit and demand deficit plus powerful rivalry are among the main motivating ingredients in the

Nigerian brewing sector. The Nigerian brewery industry is not completely left to mainly Nigerian investors as leading international players like Heineken N.V controls 70% of Nigerian beer market with majority stake in Nigerian Breweries Plc and Champion Breweries Plc while Diageo controls 27% through its ownership of Guinness Nigeria Plc and SABMiller controls 3% through its stake in the Pabod breweries Ltd and International breweries Plc (IB).

## **2. Statement of the problem**

Deployment of an ICT solution is one of the strategic initiatives embraced by organisations in order to have competitive advantages over others so as to more profits and continue to exist (Angulo, 2007). Virtually all sectors of the economy now depend and deploy an ICT based systems either as a competitive strategic move either to improve effectiveness, productivity, efficiency or costs reduction. With proliferation of ICT tools and systems comes some challenges which have continued to hinder the positive impacts of ICT. For instance, Petter, DeLone and McLean (2008) submitted that worries around financial conditions and growing strong rivalry have put pressures on organizations to decrease costs associated with ICT, which necessitate them to quantify and scrutinize the profits and expenditures of deploying an ICT system as business outfits are more concerned about the yield their expenditures will accrue to them as a result of such deployment. Organisations knew that the influences of ICT are frequently unintended and are influenced by anthropological, structural, and environmental factors; therefore, quantification of information systems (IS) or ICT success is both intricate and misleading.

Furthermore, there were a lot of expectations from ICT powered inventory management system but a research by Zhang, Lee, Huang, Zhang, and Huang (2005) reveals that ERP (Enterprise Resource Planning) systems were on the average, resulting in an over budgeted budget of 178 per cent, used 2.5 periods longer than anticipated and achieved just only 30 per cent of what were promised as benefits. This view was also corroborated in a study carried out by the duo of Wang and Chen (2006) where it was revealed that well over 90 per cent of Enterprise Resource Planning systems implemented has to be deferred coupled with extra budget amounts. Dutta and Coury (2003) while writing on ICT challenges for Arab world identified some challenges of ICT in un-industrialised countries. These studies agreed that there are challenges facing the use and deployment of an ICT powered system but much empirical studies have not been conducted on the challenges facing the adoption and use of ICT for inventory management amongst breweries in Nigeria; hence the need for this study.

### 3. Aims and objectives of the study

The aim of this study is to examine the effect of challenges facing use ICT for inventory management in the Nigerian Brewery industry while the specific objective was to investigate the challenges facing the use of ICT for inventory management in the Nigerian brewery industry; analysing the challenges being faced by individual firm implementing ICT for inventory management in the industry, effect of the identified challenges facing use ICT for inventory management on customers' satisfaction; and the impact of the identified challenges facing use ICT for inventory management on performance of the inventory management system.

### 4. Hypotheses for the study

Hypotheses for this paper were in null form. They are as follows:

- (I) **H<sub>0</sub>**: Identified challenges facing use of ICT for inventory management will not affect customers' satisfaction.
- (II) **H<sub>0</sub>**: Performance of the inventory management system does not depend on the Identified challenges facing use of ICT for inventory management.

### 5. Conceptual review – inventory

Inventory is stock of resources that are put in a specified position or arrangement or set aside for future use of a firm. Nearly all institutions whether it is industrial, educational, sole ownership, health, government institutions among others have cause to preserve one type of inventory or the other in the course of carrying out the firm's operations. In a real life situation, demand and supply of specific product or raw materials are not constantly the same and so there is the need to keep inventory in an organisation all the time in order to reduce the costs connected with the inventory control. In another vein, inventory can also be termed as inactive but utilisable stock of materials that do not bring in any income to the organisation when static. It is obvious that experts managing a business need goods that can be kept for one future use or the other in the organisation. It will not be out of place to conclude that in an organisation there are various types of items that are usually stored as inventory (Adedayo, Ojo, and Obamiro, 2010).

The objectives of inventory management, as explained by Mathur (2010), are, among others, to regulate asset such as property, goods in stock and retain it at an optimal level, safeguard the inventory against decline, obsolescence and unapproved use, reduce the carrying cost and time and to preserve adequate stock of basic natural resources in time of scarcity and expected price fluctuations. Other objectives noted by this author are to minimise funds used to acquire inventories, so that manufactured goods are offered for onward carriage to customers in a bid to satisfy requests, unhindered sales procedure and well-organised client service, guarantee materials availability for use in manufacturing and manufacturing operations at the appropriate time, guarantee a constant release of basic material to manufacturing department thereby enabling continuous manufacturing operations; and to keep satisfactory stock of finished goods for unhindered sales operations.

## **6. Information and communications technology (ICT)**

Information is the backbone of today's business organisations, institutions and industries (Musa, 2013). It was discovered from the materials reviewed that the term ICT is sometimes used in preference to information technology (IT) or "InfoTech" which is defined as the processing and dissemination of data using computer hardware and software, telecommunications, and digital electronics. Herselman and Hay (2003) defines ICT as know-hows encouraging communication and collaboration of human beings and their businesses and the formation and give-and-take of knowledge. In another vein, ICT involves a collection of automated analog and digital tools that include television, radio, fixed and mobile telephones, computers, electronic-based media example of which includes digital text and audio-video recording, and the internet, but does not include the non-electronic technologies (Rwashana and Williams, 2008).

## **7. Information and communications technology in inventory management**

Inventory management systems according to Prasanna (2014) track the quantity of each item a business maintains, activating a request for extra stock when the quantities of the stock fall below a fixed amount. In order to manage inventory effectively, companies need to retain adequate stock to meet demand without investing in more than they needed. The inventory management system has to be linked to a point-of-sale (POS) system in order to make the best use of the system. The POS system ensures that each time an item is sold; one of those items

is removed from the inventory sum total, creating a closed information circle among all departments in an organisation.

Detailing what could be described as the impact of ICT in inventory management, Prasanna (2014) listed the following; (a) bridging the cultural gap – this, the author said that information and communications technology does not permit cultural obstacles that have always hinder international business in many cases to hinder businesses from different continents of the world to transact business especially the desire of firms to get inventory items from other countries). (b) cost effectiveness – this according to Prasanna (2014) is of interest to operations manager because the manager's primary motive is to produce at a minimum costs with a resultant super profit. It is the profit making drive that makes this benefit from deploying information and communications technology system of remarkable importance to any multi-national corporations as it helped to computerize the business processes thus rearranging businesses to make them cost effective money making machines. (c) communication – following the introduction of information communications and technology, it is now very easy to communicate with anyone around the globe by means of text messages or an email for an almost instantaneous response. With the help of information and communications technology, communication has also become cheaper, quicker, and more efficient. The internet has in addition to the above unlocked up face to face uninterrupted communication from diverse parts of this planet kudos to video conferencing. It will not be difficult to interact with consumers and suppliers among others, (d) more time – deployment of information and communications technology, Prasanna (2014) said that it has made it possible for a business to open at anytime, anywhere, transacting business with other parties from different countries in a very easy, convenient and efficient manner. With ICT in place it is possible for businesses to open 24 hours a day and for 7 days a week and transact business with interested parties from different part of the world. It is now easy for businesses to order for inventory items at anytime, anywhere or anytime. (e) globalisation – Prasanna (2014) said that the introduction of information and communications technology has turn the whole world into an inclusive village through which one can transact business with another in a far country that is not humanly possible for the other to be physically present. Apart from bringing the world nearer, the deployment of ICT has also permitted the world's economy to become a single mutually dependent system.

## **8. Challenges facing ICT implementation**

Despite the various benefits obtainable from the use of ICT in business operations as enumerated above, multinational organisations encounter a number of problems when deploying such systems. Nyaga (2014) said that ICT is seen as a requirement for development

of any nation but when the developing countries is it put side by side with the advanced countries, a wide gap exist in the usage of ICT and its associated challenges between these two groups. This space is referred to as "the Digital Divide" and can be seen within a country and between countries. In developing countries, ICT infrastructure is frail leading to limited internet access. The author in the study said that the digital divide is as a result of factors such as inappropriate products (in this case; computers), asking price, education, computer mastery, human resources, and government policies. Nigeria is a developing nation and so most if not all the challenges identified by Nyaga (2014) are evident in the country.

Oliveira (1989) and Gulati (2008) also listed some of the challenges being faced in the use of ICT to include the insufficiency of monetary resources(in the developing world as the available money will be expended mostly on basic needs like food, house and roads), the cost of ICT hardware, the salary of the ICT professionals, software related costs, cost of access to the internet, poor substructure in undeveloped countries like erratic electricity supply compounded this problem, maintenance cost, burglary, fear by the administration and obsolete computers.

Parida, Johansson, Ylinenpää and Braunerhjelm (2010) opined that there are quite a lot of issues that may disallow industries from deploying and making the best use of ICT in their dealings. Factors influencing the deployment and use of ICT in businesses can significantly vary when comparing diverse sectors of the economy, nations and groups. These are unsuitable ICT for the kind of business a firm is doing, inadequate ICT skills or capability inside the firms, absence of consistent ICT associated applications, price factors, concerns with right to use to ICT, absence of trust, and legal reservations.

## **9. Theoretical framework**

The resource-based view (RBV) is a model that sees resources as key to superior firm performance and that if a resource is valuable, rare, costly to imitate and can be organized to capture value attributes (VRIO), the resource will enables the firm to gain and sustain competitive advantage. That is to say the company will have to subject the resource to VRIO structure (is the tool used to analyze a firm's internal resources and capabilities to find out if they can be a source of sustained competitive advantage) (Rothaermel, 2012; Barney, 1991).

This study was anchored on the resource-based theory because firms or companies in the Nigerian brewery industry have huge amount of inventory items that are germane to the manufacturing of various categories of products with heterogeneous resources that differ from one brewery to another. These features justify the adoption of this theory for this study. In this case, the firms in the brewery industry may see information and communications technology as a resource that should be deployed in a unique way for the organization to gain competitive

advantage over others in the Nigerian beer market that has latent for double digit growth and this is in line with the submission of Bharadwaj (2000), who contend that the resource-based view (RBV) theory argues that ICT may be viewed as a resource and that organizations may choose to invest in ICT resources that are rare, inimitable, and non-substitutable.

## **10. The review of empirical literature**

Some of the results from related empirical researches, for examples, Oliveira (1989) and Gulati (2008), indicate that some of the challenges include scarcity of financial resources, the cost of ICT hardware, the salary of the ICT professionals, software related costs, cost of access to the internet, poor infrastructure in developing nations such as supply of electricity makes this worse, maintenance cost, burglary, fear by the administration and obsolete computers. Other challenges observed by Parida, Johansson, Ylinenpää & Braunerhjelm (2010) in their study in Sweden are, though vary across different sectors, countries and continents, unsuitable ICT for the firm's type of business, limited level of ICT skills or incompetence of ICT personnel within the firms, lack of standardised ICT related applications, cost factors, issues with access to ICT, lack of trust, and legal uncertainties. There is a need to carry a similar study in a manufacturing firm like the Nigerian brewery industry to see if the challenges are the same.

Summarily, developments in information and communications technology present a pack of solutions which can be implemented in varying degrees and business contexts from time to time at very huge costs. Although, the deployment and implementation of an ICT solution will influence inventory management differently and the firms' performance but these technologies are costly to adopt and may not provide commensurate benefits to justify the huge cost outlays borne by firms. For example, nearly all business organizations that had deployed and implemented an Enterprise Resource Planning system complained either on the time it took the system to perform, high cost of for license, an additional cost for implementation, an annual maintenance cost and that there were no immediate benefits noted from the installation.

## **11. Materials/methods**

The study focuses on the effect of information and communications technology on inventory management in the Nigerian brewery industry. Information was obtained through the administration of questionnaire and the area of coverage was limited to South--western



part of Nigeria where majority of the firms in the industry are located. The research employed a cross sectional research design because the research sought to find out the effect of the independent variable (information communications and technology) on the dependent variable (inventory management). Primary data were used in this study and these were gathered through the use of a well-structured questionnaire. The study population for this study comprises of staff in Technical and Management categories in charge of inventory of the three firms selected from the Nigerian Brewery Industry that are traded on the Nigerian Stock Exchange, namely International Breweries Plc, Ilesa, Osun State, Nigerian Breweries Plc, and Guinness Nigeria Plc. These firms are the major players in the industry. Also, a purposive sampling technique was used in order to get appropriate data from the different categories of staff (technical and administrative) in the Nigerian brewery industry. One hundred (100) copies of questionnaire were administered in all, which comprised of 20, 45 and 35 copies to International Breweries Plc, Nigerian Breweries Plc and Guinness Nigeria Plc respectively.

A pilot testing of the questionnaire was carried out using Africana Breweries Limited, Km 12, New Ife Road, Ajoda New Town, Ibadan, Oyo state. The result from this study helped in authenticating the suitability of the samples and the source of data collection. The research hypothesis was tested using regression analysis. The data gathered on all variables from the questionnaire was analysed using percentages and pie charts.

## **12. Results and discussion – challenges facing the use of ICT in inventory management amongst breweries in Nigeria**

The result of the analysis showed that the challenges facing the use of ICT in inventory management amongst breweries in Nigeria are high cost of maintenance, high cost of software, excessive reliance on foreign technology and weaknesses in ICT implementation, as indicated by 5.6%, 30.4%, 12.4% and 15.7% of the respondents. Other challenges indicated by 20.2%, 1.1% and 14.6% are respectively power outage/irregularities in power supply, absence of information from the technology supplier when an updated versions of the system are deployed and problems in engaging providers in the system development processes (specifically medium scale organisations) because of investment anticipated is one of the challenges facing the use of ICT in inventory management amongst breweries in Nigeria (see Table 1 below).

**Table 1.***Challenges facing use of ICT in inventory management amongst Breweries in Nigeria*

Challenges	Frequency (n = 89) (%)
High cost of software	30.4
Power outage/irregularities in power supply	20.2
Weaknesses in ICT implementation	15.7
Problems in engaging providers in the system development processes – specifically medium scale organizations – because of investment anticipated	14.6
Excessive reliance on foreign technology	12.4
High cost of maintenance	5.6
Absence of information from the technology supplier when an updated versions of the system are deployed	1.1

Source: Field Survey, 2016.

### 13.Challenges faced by individual breweries

In order to have a clear picture of the challenges faced by individual breweries, a cross tabulation was carried out. This is depicted in Table 2. The analysis, as revealed from this cross-tabulation, indicate that the challenges faced by these companies in the use of ICT for inventory management, are high cost of software, indicated by Nigerian Brewery Plc and Guinness Nigeria Plc, irregularity in power supply, indicated by International Brewery Plc.

**Table 2.***Challenges Faced by Individual Breweries*

Which of the following are the challenges you face in the use of ICT for inventory management in your company	Company name			Total
	Guinness Nigeria Plc	Nigerian Brewery Plc	International Brewery Plc	
1. High Cost of Maintenance	2	2	1	5
2. High Cost of Software	13	12	2	27
3. Excessive reliance on foreign technology	4	4	4	12
4. Weaknesses in ICT implementation	5	7	2	14
5. Power outage/Irregularities in Power Supply	5	8	5	18
6. Problems in engaging providers in the system development processes - specifically medium scale organizations – because of investment anticipated	0	1	0	1
7. Absence of information from the technology supplier when an updated versions of the system are deployed	3	6	3	12
<b>Total</b>	<b>32</b>	<b>40</b>	<b>17</b>	<b>89</b>

Source: Field Survey, 2016.

## 14. Testing of hypotheses

For Hypothesis I: Identified challenges facing use ICT for inventory management has no effect on customers' satisfaction of firms in the Nigerian Brewery Industry. Respondents were asked if they strongly agree, agree, undecided, disagree or strongly disagree with the notion that challenges facing use ICT for inventory management by firms in the Nigerian Brewery Industry lead to customers' disloyalty, cause stock out, promote inconsistency in determining reorder levels, lead to unrealistic maximum and minimum inventory levels, cause decrease in product quality, increase in wastes, lead to increase in delivery time and increase in customer's complaints. Their responses were presented in table 3.

**Table 3.**

*Effect of Identified challenges on customers' satisfaction*

Options	Frequency
Strongly Agree	55
Agree	21
Undecided	6
Disagree	4
Strongly Disagree	3
Total	89

Source: Filed Survey, 2016.

## 15. Testing of the hypothesis

Using  $\chi^2 = \sum (\text{Observed frequency} - \text{expected frequency})^2$

Expected frequency

Expected frequency =  $55 + 21 + 6 + 4 + 3 = 89 = 17.8$

5 5

**Table 4.**

*Chisquare Table*

Responses	Observed (O)	Expected (E)	O - E	(O-E) <sup>2</sup>	$\frac{(O-E)^2}{E}$
Strongly Agreed	55	17.8	37.2	1383.84	77.74
Agree	21	17.8	3.2	10.24	0.58
Undecided	6	17.8	-11.8	139.24	7.82
Disagreed	4	17.8	-13.8	190.44	10.70
Strongly Disagreed	3	17.8	-14.8	219.04	12.31
Total	89				109.15

Calculated  $\chi^2$  is 109.15 while the  $\chi^2$  from the table is obtained by assuming 5% level of significance and using  $M = N - 1$  for degree of freedom, where N is the number of row of the

table for the chisquare. Here, N is 5, therefore degree of freedom (M) = 5 – 1 = 4. Therefore, the  $\chi^2$  from the chisquare table is 9.488. Since the computed  $\chi^2$ ; 109.15 is greater than 9.488, we therefore reject the null hypothesis ( $H_0$ ) and accept the alternate hypothesis ( $H_1$ ). That is to say, we conclude that Identified challenges facing use ICT for inventory management has strong effect on customers' satisfaction of firms in the Nigerian Brewery Industry.

**For Hypothesis II:** Performance of the inventory management system does not depends on the identified challenges facing use ICT for inventory management by firms in the Nigerian Brewery Industry. Respondents were asked if they strongly agree, agree, undecided, disagree or strongly disagree with the notion that challenges facing use ICT for inventory management by firms in the Industry lead to seasonal fluctuation, increase in wastes, aids increase in production costs, pave way for untimely deliveries, aid increase in inventory cycle time, pave way for increase in production breakdown and cause decrease in inventory turnover. Their responses were presented in table 5.

**Table 5.**

*Effect of Identified challenges facing use ICT for inventory management on the Performance of the inventory management system*

Options	Frequency
Strongly Agree	45
Agree	30
Undecided	5
Disagree	6
Strongly Disagree	3
Total	89

Source: Filed Survey, 2016.

## 16. Testing of the hypothesis

Using  $\chi^2 = \sum (\text{Observed frequency} - \text{expected frequency})^2$

Expected frequency

Expected frequency =  $45 + 30 + 5 + 6 + 3 = 89 = 17.8$

5 5

**Table 6.**

*Chisquare Table*

Responses	Observed (O)	Expected (E)	O - E	(O-E) <sup>2</sup>	<u>(O-E)<sup>2</sup></u> / E
Strongly Agreed	45	17.8	29.2	852.64	47.79
Agree	30	17.8	12.2	148.84	8.36
Undecided	5	17.8	-12.8	163.84	9.20
Disagreed	6	17.8	-11.8	139.24	7.82
Strongly Disagreed	3	17.8	-14.8	219.04	12.31
					85.48

Calculated  $\chi^2$  is 85.48 while the  $\chi^2$  from the table is obtained by assuming 5% level of significance and using  $M = N - 1$  for degree of freedom, where  $N$  is the number of row of the table for the chisquare. Here,  $N$  is 5, therefore degree of freedom ( $M$ ) =  $5 - 1 = 4$ . Therefore, the  $\chi^2$  from the chisquare table is 9.488. Since the computed  $\chi^2$ ; 85.48 is greater than 9.488, we therefore reject the null hypothesis ( $H_0$ ) and accept the alternate hypothesis ( $H_1$ ). That is to say, we conclude that performance of the inventory management system depends on the identified challenges facing use ICT for inventory management by firms in the Nigerian Brewery Industry.

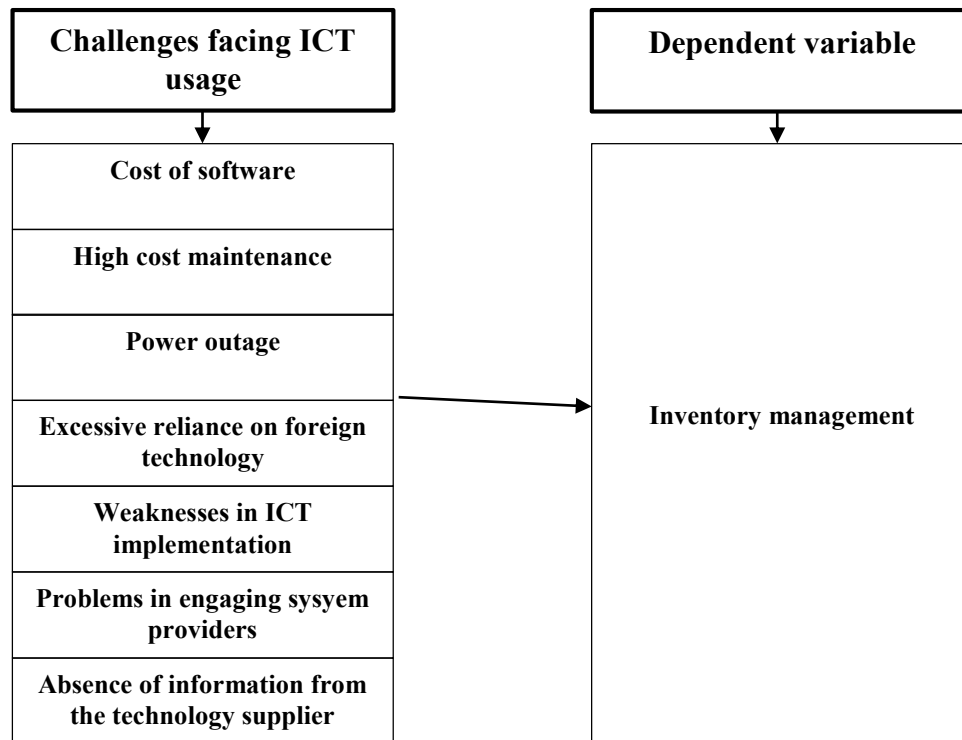
These findings, as indicated above, are similar to the findings of previous empirical studies conducted from different countries of the world by Oliveira (1989) and Gulati (2008), Parida, Johansson, Ylinenpää and Braunerhjelm (2010), Muthuri (2014) and Dutta and Coury (2003). This paper agreed with the submission of these researchers that in undeveloped states, ICT challenges comprise of regulatory as well as legal problems, very feeble ICT policies, deficiency of research and development, too much dependence on overseas technology and weak ICT applications. Others are costly delays and errors, high maintenance costs and lack of the necessary IT infrastructure to great extents.

## **17. Conclusion and Recommendations**

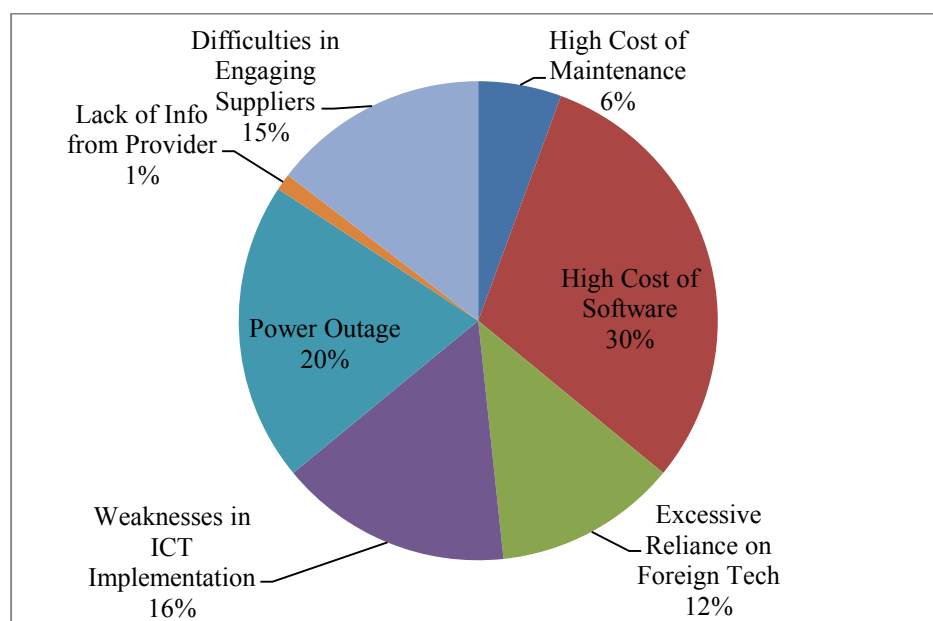
This study investigated the challenges facing the brewery industry in Nigeria in the use of ICT for inventory management. This is carried out through the administration of questionnaire and the responses were analysed using appropriate statistics and concluded that there are challenges facing the use of ICT for inventory management in the industry; but the major challenge is the cost of software and that these challenges had positive significance on the performance of inventory management and customers' satisfaction. It is therefore recommended that management of firms in the Nigerian brewery industry should collaborate with software developers in Nigerian to develop a software that will be replica of ERP that will be efficient, effective and affordable for inventory management and other operations in the industry. Governments also have important roles to play in order to remove the digital divide by cutting tax imposed on imported ICT products, relax the market for ICT hardware, telecommunication and the internet business. If Government can apply these measures the prices of ICT related products will come down and many firms will be able to afford them.

## Figures

### Conceptual Model



**Figure 1.** Schematic Diagram showing the relationship between challenges facing information and communications technology usage and Inventory Management. Source: Author, 2016.



**Figure 2.** Challenges facing use of ICT

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