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INFORMATION COMMUNICATION TECHNOLOGY IMPLEMENTATION AND FINANCIAL PERFORMANCE OF PAINT MANUFACTURING FIRMS: EXPERIENCE FROM NIGERIA

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ABSTRACT

Technology Usage has become a necessity for existence in today's industrial business environment and in light of this, effective implementation of ICT in the Paint industry is expected to boost performance and therefore worthy of exploration. This study examined the relationship between ICT Implementation and performance of selected listed paint manufacturing firms in Nigeria. Secondary data were employed. Secondary data covering a period of 2008-2019 were collected from the annual report of the selected Paint industry in Nigeria. The study covered all listed manufacturing Paint companies operating and registered with Lagos chamber of commerce and industry. Seven out of Fourteen (14) manufacturing Paint companies registered with Lagos chamber of commerce and industry as at 2019 was purposively selected. Data collected were analysed through the use of descriptive statistics (Table, percentage, mean, frequencies and standard deviation). The results of Correlation analysis showed a significant relationship between ICT implementation and financial performance of paint manufacturing firms. The study concluded that there is significant relationship between ICT implementation and Performance of selected paint manufacturing firms in Nigeria. In view of the above findings it is recommended that manufacturing paint firm should put more effort by developing mechanism that will strengthens full implementation of Technology.

Keywords: Information Communication Technology, Financial Performance, Listed Manufacturing Paint Firm, Return on Capital Employed (ROCE)

INTRODUCTION

It is widely acknowledged that technology is a critical determinant of sustainable growth. As an indication of technological progress, the adoption and the use of Information and Communication Technologies (ICTs) are keys to the development of knowledge-based economy and future sustainability. The existence of ICT infrastructure provides business opportunities and helps firms build up business networks between suppliers, buyers,

and customers. Effective implementation of ICT in the Paint industry is very significant to performance and therefore worthy of exploration. The success and continuity of business organizations depend greatly on their ability to adopt and utilize technology.

The power of information communication technology (ICT) in business management lies in its ability to provide visibility, traceability, and real time information (Sanker, 2008). Information communication technology, therefore, is the introduction of macro-electronics and computers to the processing of data to produce the right information, to the right decision makers, at the right time, in the right place at a minimum cost. Evidence from scholars (Anamakin, 2004; Adewoye et al, 2017; Oladejo and yinus, 2020) revealed that technology pave way for knowledge and facts and serve as a modern approach of handling information by electronic means, which involves access, storage, processing, transportation or transfer and delivery of information through the use of components that process inputs and produces output for individual organizational uses. All the feature of technology are expected to serve as a driven tools for achieving effective performance in any establishment either in a public or private sector.

Today, Nigeria's paint industry is the largest paint producing industry in the county and serves as a player to the Nigerian economy through employment generation, value creation, and increased Gross Domestic Product (GDP). For instance, Kiwamu (2018) reported that Nigeria's paint industry is projected to record a five percent growth rate from its present estimated $268 million (N96.50 billion) in 2018 to $377 million (N135.80 billion) by 2025. In a nutshell, deployment of technology with day to day activities of a manufacturing firm, especially the paint sector is expected to enhance adequate performance. This is form the main thrust of the current study.

Statement of the Problem

In a global world, the use of ICT to increase productivity and performance is one of the challenges being faced by manufacturing firms presently in developing countries due to the lack of knowledge on the benefit of ICT in their day to day operation activities. However, there is the need for changing roles of Manufacturing firm operation (painting sector), to meet the global challenges. Report revealed that the economic relevance of Paint companies to the Nigerian economy cannot be overemphasized because it's serve as one of the major players in the employment of labor and economic advancement (Kiwamu, 2018). Despite the relevance of Paint companies to the Nigerian economy, the mechanism that can enhance the effective operation of the firm in the digital era has not been fully explored. To achieve effective and sustainable development in the paint industry, technology implementation should be embrace to solve inherent problems, such as time and cost overruns, inefficiency, and safety and quality issues, has drawn increasing interest from both practitioners and academics over the past decade. The paper aim to examine the relationship between information communication technology implementation and performance of Paint industry in Nigeria.

Research Hypothesis

Ho: There is no significant relationship between ICT implementation and Performance of selected listed paint manufacturing firms in Nigeria.

LITERATURE REVIEW AND CONCEPTUAL EXPLANATION

An Overview of Technology and Implementation Stages

Implementation of technology over the years has become important not only for business but for governance and personal use. Technology has not only altered the way people live, work and play but has also created a new infrastructure for business, scientific advances and social interaction. At the same time, it has brought about complex issues that transcend mechanical boundaries including the emergence of the digital divide among nations, races and communities. Technology implementation is a process that encompasses the stage from which an enterprise identifies the need in using technology in capturing and process all relevant activities. Most scholars in the field of ICT embraces Cooper and Zmud's model in explaining Technology implementation because it comprehensively classifies the implementation process of an innovation sequentially. In addition to this, a number of studies adopted this model, and it was found very suitable. Cooper and Zmud (1990) model described the Technology implementation process for innovation into six stages, which include: Initiation, Adoption, Adaptation, Acceptance, Routinization, and Infusion.

The first stage is the initiation stage; this stage concerns a thorough evaluation of the organization need and a resulting aspiration in meeting this need. The organization need can be propelled by a necessity for improvement (pull) or/and by the instance of technology innovation (push). The second stage, which is the adoption occurs when the organization makes an apparent decision to implement and invest resources in the technology. The Third stage is the adaptation stage. At this stage, the technology is developed, installed and maintained having revised the organizational structures and organizational processes. The acceptance stage represents the fourth stage; at this stage, the organizational members are encouraged to be committed in the use of technology application deploy. The last stage is routinization and diffusion at this stage, the technology has become a normal activity as such loses its identity as an innovation. Understanding the multifaceted process involved in technology implementation stage is vital in adopting technology toward achieving effective performance in an organisation.

Performance and Firm Performance Indices

Firm performance is the potential and ability of corporate entity to efficiently utilize the available resources to achieve targets in line with the set plans of the organisation. Firm performance is very important. A well performing firm can bring high and long term profit which will generate employments opportunities and improve the income of individual. More so financial performance of a firm will enhance the return of it employee, increase production unit of firm. The financial performance is a general measure of a firm's over all financial health over a given period of time, and can be used

to compare industries or sectors in aggregation. There are many different ways to measures financial performance but all measures should be taken in aggregation. Financial performance of a firm can be measure based on return on Sales (ROS) or Return on Capital employed (ROCE). Return on Capital employed (ROCE) is a profitability ratio that provides how much profit a company is able to generate from its capital employed by comparing net operating to capital employed into the business. Return on sales (ROS) is a ratio used in evaluating an entity's operating performance. It is also known as "operating profit margin.

Empirical Review

Previous studies have established sufficient evidence of the values or benefits of ICT implementation in manufacturing firms. A number of these values are applicable to general practices, including the potential for ICT to facilitate a broad range of intra- and inter-enterprise business operations and transactions by enhancing productivity and work effectively, reducing transaction costs, promoting organizational and commercial reform, improving communication and collaboration processes, boosting knowledge transfer and management and enhance organisational performance. Similarly, Acar et al. (2005) concluded that the benefits of information technology and systems can be divided into three categories, namely improved productivity, expanded business, and minimized risk. Based on the study from Love et al, (2004) classified ICT benefits as being strategic values, tactical values, and operational values. In other words, ICT not only enhances work effectiveness and reduces labor costs, but also influences organizational structure and business process and performance. Considering that tactical and operational values are based on efficiency.

More so, several studies have identify factor influencing or militating the deployment of technology in a corporate organisation. Duan et al 2002) identified lack of Technology skills and knowledge in Manufacturing Small and Medium Businesses as one of the major challenges faced by Developing country, particularly in Nigeria. Also Shiels et al (2003) found that characteristics of the firm and industry sector are contributory factors to the adoption and exploitation of Technology. Heeks (2002) found that technology project failures in developing countries is higher than developed countries, possibly due to lack of technical and human infrastructure.

In recent times, technology has provided support to business activities. The business environment has also benefited immensely from this support. For instance, the alignment of technology with day to day business activities has resulted in improved organizational efficiency (Baren, 2010; Romney and Steinbart, 2009). However, the relationship between technology and business activities has presented certain threats that may hamper on user and stakeholder satisfaction. Potential threats facing manufacturing in technology environment are entangled as the presence of a threat includes the presence of another threat. Some of the threats identified are information system risk and security. Information system risk entails data loss, privacy distortion, unavailability of a system, dissatisfactions with system deliveries and performance and

affordability of vendor pricing (Brandas and Didraga, 2015).

The value of technology has been measured in many ways such as financial performance measures, economic performance measures and other measures like customer satisfaction. In a more recent study Shao et al. (2001) used stochastic frontier production function on a firm-level panel data for US firms and showed that technology has a significant positive effect on technical efficiency and hence contribute to the productivity growth in organizations. Oladejo et al (2014) investigate the strength of technology adoption on performance of food and beverages SMEs operation in Nigeria, using multi-stage sampling technique, Data collected were analyzed using Anova, the study concludes that technology has a positive effect on the performance of selected food, fruit drink and Beverage SMEs operation. Akande and Yinus (2013) appraisal the Impact of Information Technology (IT) on Nigeria Small and Medium Enterprises (SMEs) Performanceusing multi-stage sampling technique to select a sample of 200 respondent from list of 4,535 registered small and medium Enterprises as provided by NASSMEs. Result from the findings show that information technology has a significant impact on the performance of SMEs operation in Nigeria.

Perspective of Current Studies on ICT and Manufacturing Firm Performance

Having looked at different literature like (Maliranta and Rouvinen, 2006; Koellinger, 2005 ; Mahmoud et al, 2006)) on Technology and firm performance . The variables of their studies were measured based on perception and expected qualitative characteristics of financial report quality. Whereas this present study makes an expression on both quantitative and qualitative characteristics of technology and Performance indices of selected paint manufacturing in Nigeria. Further, the construct of this study was based on Technology acceptance model (TAM) and Information theory, this is based on the fact that TAM is one of the most influential models widely used in the studies of the determinant of technology implementation and theorizes that an individual's behavioural intention to adopt emerging new system.

METHODOLOGY

Secondary data were employed. Secondary data covering a period of 2008-2019 were collected from the annual report of the selected Paint industry in Nigeria. The study covered all listed manufacturing Paint companies operating in Lagos and registered with Lagos chamber of commerce and industry. Seven out of Fourteen (14) manufacturing Paint companies registered with Lagos chamber of commerce and industry as at 2019 was purposively selected. Data collected were analysed through the use of descriptive statistics (Table, percentage, mean, frequencies and standard deviation) and inferential statistics such as correlation analysis. Pearson Product Moment Correlation Coefficient analysis was used to establish the relationship between information communication technology implementation and Performance of selected listed paint firms in Nigeria. The financial performance of selected firm were measured based on Return on Capital Employed while the ICT implementation were measured based on all components of

technology that is expect to facilitate effective Performance. Such as Firm Size (BS);Cost of ICT Deployment (CID); Maintenance cost, Training and Development Cost and Human resource cost

Model Specification

The study variables factored in correlation and regression model.
Correlation model is used to quantify the degree to which two variables are related. Correlation analysis was used to establish whether there is linear relationship between ICT implementation and financial performance of selected manufacturing paint firm in Nigeria
Pearson Product Moment Correlation Coefficient is used for data analysis as follows:

$$r = \frac{n\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y^2)}.} \quad \text{Equation (3.1)}$$

Where:

$\sum XY$ = Sum of the product of ICT implementation value and financial performance value

ΣX = sum of ICT implementation value
ΣY = sum of Financial performance value
ΣX^2 = sum of square ICT implementation value
ΣY^2 = sum of squared financial performance value
Measurement of FPis based financial performance indices from annual report of the selected firm.

RESULTS AND DISCUSSION

Descriptive Statistics of Firm Variables used for the study

Descriptive analysis of this study presents summary of the characteristics of all Firm variables used in the study. Statistical variables reported under this section include mean, standard deviation, minimum and maximum of the pooled observations of all variables across unit and time period i.e. 7 selected paint Manufacturing firm, in Lagos state, Nigeria, over 12 years period covering 2008 to 2019. Summary of the descriptive statistics is presented in table 1. Analysis from the results revealed that the average value of Return on Capital Employed (ROCE) of the seven selected listed paint manufacturing firms stood at .1038777, while minimum stood at .0102 and the maximum .80965. The mean value of the Training and Development Cost (TDC) for the selected firms was 124811.2, while 23643 was the minimum and 1486646 was the maximum. The average value of Human Resources Cost (HRC) was 279029.7, while

34127 was the minimum and 565313 was the maximum. The average Maintenance, Running and Supply Cost (MRSC) stood at 54250.71 per annum, while 2034 was the minimum and maximum stood at 414862. The average Cost of Technology Deployed stood at 32338.4, while 3444 was the minimum and 189120 was the maximum. The average value of the Firm Size stood at 4.478225, while 2.7646 was the minimum and 7.6312 was the maximum.

Table 1: Summary of Descriptive Statistics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
ROCE	84	.1038777	.1554743	.0102	.80965
TDC	84	124811.2	264021.1	23643	1486646
HRC	84	279029.7	90777.56	34127	565313
MRSC	84	54250.71	74545.12	2034	414862
CTD	84	32338.4	22046.6	3444	189120
FS	84	4.478225	1.293388	2.7646	7.6312

Source: computed by researcher using data extracted from annual reports of selected firm (2021)

Correlation Analysis between Information Communication Technology and Performance of selected listed paint manufacturing firms in Nigeria

To ascertain the direction of relationship between variables employed in the study, the study conducted correlation analysis. Pearson correlation was used to examine if there was any degree of association between Information Communication Technology Usage and Performance of selected listed paint manufacturing firms in Nigeria. Performance were measured based on Return on capital employed Result in Table 5 describes the correlation matrix of the main variables. From the table it can be observed that all variables display considerable variation between the selected firms, the correlation coefficient between Training Development cost, Firm size and return on capital employed by firm is found to be positive (0.5140 and 0.5052, P<.0.05), implying that a unit increase in training development and firm size increase firm performance based on return on capital employed by the firm. Thus, show direct positive relationship between the variables. More so, the result (r = -0.6041; -0.5353; -0.6226, P<.0.05) revealed that a units in Human resource cost, cost of technology employed and maintenance, running and supply costs reduces firm performance, implying that Human resource cost, cost of

technology employed and maintenance, running and supply costs negatively related to paint firm performance in Nigeria.

In conclusion, the results generated indicate that implementation of ICT is significantly correlated with Performance of with Performance of selected listed paint manufacturing firms in Nigeria These results corroborate the findings of Shao et al., (2001), Rufai (2014), Oladejo *et al* (2021), Elias (2016), in the field of emerging trend in technology Usage and firm performance with the argument that ICT has effect on technical efficiency, operational efficiency and contribute to the performance corporate organizations.

Table 2: Pearson Correlation Matrix

	ROCE	***TDC***	***HRC***	***MRSC***	***CTD***	***FS***
ROCE	1.0000					
TDC	0.5140	1.0000				
HRC	-0.6041	0.5926	1.0000			
MRSC	-0.5353	-0.6341	-0.5680	1.0000		
CTD	-0.6226	-0.5528	0.5509	0.5506	1.0000	
FS	0.5052	0.4791	-0.4812	-0.5596	0.5223	1.0000

Source: *Author's Computation (2021)*

Conclusion and Recommendation

The study concluded that there is significant relationship between ICT implementation and Performance of selected paint manufacturing firms in Nigeria. In view of the above findings it is recommended that manufacturing firm should put more effort by developing mechanism that will strengthens full implementation of Technology.

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