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Impact Analysis of Information Communication Technology (ICT) in Project Evaluation and Management in Nigeria

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Abstract

Project management is believed to be justified as a means of avoiding the ills inherent in the construction sector of the economy and for which reasons most projects fail and or abandoned. This study is aimed at assessing the role of information communication technology (ICT) in the area of project evaluation and management and to emphasize the importance of information communication technology in the area of project evaluation. The hypothesis of this study is that there is no significant relationship between Information Communication Technology (ICT) and Project Evaluation and Management. It also presents a historical development of telecommunications starting from Lanlate I Satellite Earth Station which was Nigeria's first international satellite telecommunications gateway to the outside world. An overview of the general level of development of information technology in Nigeria is also highlighted and it also examines the extent to which it is being used in support of information delivery and communication in science and technology. The importance of information technology devices to the general development of national economy and educational advancement is also discussed. This paper also emphasizes that for the survival and relevance of higher education institutions in Nigeria, ICT should be declared an institutional priority with adequate funding and support.

It is finally concluded that the tremendous advancement in computer technology, software engineering and Telecommunications as well as the resultant radical changes and advances in the techniques of data and information processing, storage, retrieval and dissemination in *Nigerian* construction companies within a decade is, no doubt, a revolution.

Key words: Project evaluation; Management; Information communication technology; Telecommunication; Computer; Technology

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INTRODUCTION

Information communication technology (ICT) has contributed immensely in the area of project evaluation and management. Information has always played a very important part in human life. However, in the mid-20th century, the role of information increased immeasurably as a result of social progress and the vigorous development of science and technology. In addition, as Trostnikov (1970) has pointed out, rapid expansion of a mass of diversified information is occurring, which has received the name "information explosion". As a result, the need has arisen for a scientific approach to information and for elucidation of its most characteristic properties which has led to two principal changes in interpretation of the concept of information. First, it was broadened to include information exchange not only between man and man but also between machine and machine, as well as the exchange of signals in the animal and plant worlds.

The pace of change brought by new technologies has had a significant effect on the way people live, work, and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed. Information technology, while an important area of study in its own

right, is having a major impact across all curriculum areas. Easy worldwide communication provides access to a vast array of data, challenging assimilation and assessment skills. Rapid communication, plus increased access to information Technology (IT) in the home, at work, and in educational establishments, could mean that learning becomes a truly lifelong activity- an activity in which the pace of technological change forces constant evaluation of the learning process itself. Communication can be described as the process of transmitting and receiving ideas, information, and messages. In keeping with their complex nature and multiple applications, Information and Communication Technologies (ICTs) may be viewed in different ways.

Information Communication Technology (ICT) in construction can be broken down into different segments for its better understanding and its role in construction. The word information communication and technology can be understood from different perspectives as well as towards an ICT view, as a whole new meaning of its own. Adriaanse and Voordijk (2005) give explanation from the functionalist (positivistic, "scientific") perspective that "ICT is a neutral provider of input for decision making". In this point of view communication is no more than distribution of information. ICT may be adopted by specific groups of users within an organization. For example, use of computer aided drafting (CAD) by architects or estimating software used by engineers or project managers. Emmitt and Gorse (2003) identifies the reality that, communication between construction industry participants and organizations are concerned with information exchange, dealings with drawings, specifications; cost data, programmes plus other design and management information Conclusively, Information Communication Technology (ICT) can be the interaction of meaning to reach a mutual understanding between a sender and a receiver via technology.

Thus, objectives of this paper are to:

i. Assess the role of information communication technology (ICT) in the area of project evaluation and management.
ii. Emphasize the importance of information communication technology in the area of project evaluation.
iii. Create some solution to some of the major problems faced in implementation of projects in a particular construction company.
iv. Show the relationship that exists between ICT and project evaluation and management.

The above objectives are guided by the following questions:

i. What role has Information communication technology has played so far in construction companies?
ii. What is the available information provided by ICT so far?
iii. What are the alternative solutions without the use of ICT supported information in project evaluation?
iv. Has the company been able to meet its goals without fully supported ICT means?

Communication can be viewed as a metaphorical 'pipeline' along which information is transferred from one person to another (Axley, 1984). Nonetheless, defining 'communication' is difficult as it is multidimensional and indefinable. It can have a variety of different meanings, contexts, forms and impacts and so will mean different things to different people in different situations. Certainly the case within the construction industry is a situation where excess of diverse communication occurs simultaneously as teams in different sectors of construction undertake tasks, activities and are constantly involved in communication.

1. LITERATURE REVIEW

1.1 The Concept of Information Communication Technology (ICT)

Information Communication Technology or Mobile information and communication technologies present massive prospective to build up organizational activities inside the construction business. In reality the construction professionals are enormously movable they are normally found in temporary places of work on site; and they would be able to use substantial time travelling among sites and frequently journey extensively on construction site. Efficient mobile information and communication technologies (ICT) would potentially augment the superiority of building work (for instance: devotion to plan condition), in addition to diminish time as well as expenses with reformation procedure plus minimizing the chances of modifications (e.g. entrance to not on time design transforms) (Sarshar et al., 2004).

Mobile information and communication technologies or ICT based solutions have been functional efficiently within the manufacturing, as well as a number of have still attained a return on the outlay within a year. Despite the fact that, an additional all-purpose assessment through proposed that the uptake of ground-breaking ICT inside the construction business is not good enough specified the research attempts concerned as well as the multi-million striking nature of numerous of the industrial agreements (Arayici et al., 2005). Main hurdles to mobile ICT acceptance have made-up that the industrial means established by means of suppliers have frequently unproductive to be interpreted into company impact on the actual world. One such impediment is an inopportune consideration of the indisputable requirements of the ICT mobile end user or client, in excess of as well as above the condition of connectivity; the digital duplication of active paper-based procedures, together with the computerization

of data confine and broadcasts.

Fundamental to attain well-ordered, resourceful and satisfying solutions is an accepting of the background inside which manufactured goods utilization takes place. Despite the fact that, the total diversity of backgrounds knowledgeable throughout mobile goods users builds it enormously hard to hold background in a structure that is helpful for notifying product plan. Usual instances of the sequential, spatial and contextual mobility of construction business professionals are accessible (Arayici et al., 2005).

1.2 Information and Communication Technology in Nigeria

Computing and Telecommunications (and also such areas as broadcasting and publishing) used to be quite distinct industries, involving distinct technologies. Now they have covered around certain key activities such as use of the Internet. The pace of adoption of new information technology (IT) has been very speedy: it is markedly more rapid than that of earlier revolutionary technologies such as the steam engine or electric motor. But in Nigeria, information technology is rather a recent phenomenon. Telecommunications, the oldest element, had a modest beginning with the first trunk telephone service between two towns' in 1923 (Ofulue, 1980). It was not until the 1950s that substantial expansion began with the introduction of very high frequency (VHF) radio systems, 116 manuals and five automatic telephone exchanges.

In other to enhance the quality of telecommunications services in Nigeria, the telecommunications arm of the Post and Telegraph Department and the Nigerian External Telecommunications Limited, which previously managed the domestic and external services respectively, were merged in 1984 to single profit-oriented limited liability company called Nigeria Telecommunication limited (NITEL). Under NITEL, the number of automatic switching centers in Nigeria grew to 227 in July 1986. The national telex network grew also to a total capacity of 12,800 lines with only one international exchange having 1,500 trunks. By this time, the transmission media for toll and trunks included terrestrial microwave, coaxial cable, and domestic satellite (Unchidiuno, 1986). But it must be realized that more attention was paid to communication with the outside world than the development and enhancement of the internal telecommunications system.

The Lanlate Satellite Earth Station, Nigeria's first international satellite telecommunication gateway, became operational in March 1971 with one antenna (Lanlate I) tracking the Indian Ocean INTELSTAT satellite. A second antenna called Lanlate II was added in December 1975. This one operates with the Atlantic Ocean satellite. By the end of 1986, the two antennas provided a total 417 circuits, namely 248 in the Atlantic Ocean Region and 169 in the Indian Ocean Region. Another international earth station has been built at Kujama in Kaduna State. With these facilities, most of Nigeria's external telecommunications, including telephone, telex, facsimile, and television, has been by satellite. The Nigeria Domestic Satellite System was established in 1975 with a network of six 11-metre earth stations operating on a leased INTELSAT satellite transponder. The network was subsequently expanded to comprise three leased transponders each of 36 MHz, 20 earth stations, a network monitor and control station, and backhaul radio links between the DOMSAT earth stations and NITEL as well as stations of Nigerian Television Authority (Unchidiuno, 1986).

The first transponder was allocated for television transmission, while the other two were reserved for telecommunication services. But it must be realized that the history of the development of telecommunications in Nigeria is characterized by unfulfilled objectives. Achievements have been consistently short of demand for services. It must be noted that the present analogue system on which the national telecommunications network is based is outdated and this has been a serious limitation to the efficiency of the telecommunications network in this country. But there are, however some indications that telecommunications in Nigeria may improve in future. NITEL is still following up its plans for a digital network though progress has been very slow.

Recently, it was reported that the nation's digitalized earth station, expected to facilitate telecommunications link between Nigeria and other parts of the world, was ready for use (Ikhurionan et al., 1991). This will be the third gateway after Lanlate in Oyo State and Kujama in Kaduna State. The first phase of the digital project at Abuja was commissioned in 1990, while work is in progress on several other projects. Some organizations have ventured out developing their own networks. The greatest achievements are those of the Nigerian National Petroleum Corporation (NNPC), which in 1990, installed a digital communications network regarded as the largest in Africa. It is a hybrid network of fibre optic and coaxial cable. The turnkey system interconnects all the vital sites and offices of the NNPC, and provides facilities for automatic voice dialing, teleconferencing, and transmission of data, facsimile and telex.

Nevertheless, a truly national network is the most desirable solution, but this is not yet in sight. Nigeria also had a late start in the use of computers, but a start have been made, the growth in use has been quite remarkable. A tremendous impetus was given to the computer market by the growing interest in microcomputers in the past decade. The computer installations are widely distributed in universities, government departments and agencies, banks, commercial establishments, and industries. It must be realized that the private sector has, however, risen to a position of dominance in the use of computers. Perhaps in any discussion of application of modern technology in the library, the first thing that comes to mind is the computer.

One advancement that has been achieved in the area

of application of technology is that, unlike previously, the librarian does not have to be literate in the various technologies before employing them. In other words, he does not have to be a technical expert before using any form of technology, or a programmer before using a computer. However, he still requires some technological knowledge, albeit at an abstract and intellectual level. Furthermore, and this is important for us in developing countries, the capacities of each technology should be well written up by the vendor and understood by the librarian before committing himself. Whatever one chooses to call it, the computer has made such a tremendous impact on the organization, management and dissemination of information that it readily commends itself to any library ready to accept it.

As pointed out by Ukoh (1984) "computer has become such a household word in the developed world that libraries should see it as a great opportunity which should be taken up as soon as possible, but sooner than later". An earlier survey by Uborgu and Gupta (1987) revealed that while computer market in Nigeria has been growing rapidly, library has not contributed much to the growth. It is probably not right to say that libraries have not been aware of benefit of automation. Their survey showed that many libraries in Nigeria believed in the necessity for automation. The advantages of computerized system greatly outweigh the disadvantages so that, with proper planning, libraries will derive enormous benefits from the venture.

There is no area of library operation to which the computer has not been applied with tremendous gains. As asserted by Nilles (1987), "the new technology is just based on information- electronic, telecommunications, their component parts, and the software that animates them". With these benefits of computerized library system, one can ask how much of these are in use in Nigeria? In this regard, one can say that Nigerian libraries and other sectors in the economy were neither here nor there for the past fifteen years. In the past decade, whatever has been done in terms of modern technological application or automation has not gone deep enough to make any appreciable impact. For instance, many Nigerian libraries faced various problems in their attempt to computerize their library operations. These problems are not really of the library's making but are the usual problem confronting most of the computer installations all over the country today-shortage of manpower and lack of spare parts.

Coupled with this, of course, is the problem of constant computer breakdown and low level of electricity supply. These problems have really slowed down the activities of Nigerian university libraries and other organizations in utilizing the computer-stored information for the services of its clientele. One is however happy to note that since the past five years, things have been changing for better as far as information technology in library operation in Nigeria is concerned. Until a few years ago, it was generally assumed that computer technology was not viable in Nigerian libraries. However, some university libraries are now either computerizing some of their activities through their respective university's Computer Centres or installing these computers in their own libraries.

Private sectors are not left out in this information technological revolution. Nigerian university campuses are now jam-packed with Information Communication technology facilities. It is no longer strange to see lecturers and students doing their researches and other academic works using various IT devices like email and Internets. One is happy to note that both the federal government of Nigeria and other international funding agencies are now interested in the general development of ICT in higher education in Nigeria. For example, Federal Ministry of Education has embarked on the establishment of National Virtual (Digital) Library Project.

One of the objectives of this is to provide, in an equitable and cost effective manner, enhanced access to national and international library and information resources and for sharing locally-available resources with libraries all over the world using digital technology. Model Virtual (Digital) Library at National Universities Commission (NUC) will be the hub of the university-based libraries. The delivery of the Virtual Library will be through the Internet, CDROM and Wide Area Network (WAN). When this is fully materialized, it will definitely be a boost to the development of ICTs in Nigerian educational system. Some other international funding agencies like Carnegie Corporation of New York are interested in Nigerian ICT developmental programme. Carnegie Corporation also supports the establishment of scientific databases at the University of Ibadan, Nigeria.

With similar grants for academic development, the Corporation is presently in collaboration with Obafemi Awolowo University, Ile-Ife, Nigeria and the university library is well positioned to gain from the grant. For instance, through the various grants from these international granting agencies, Information Technology and Communication Unit(INTECU) is well established on the campus of Obafemi Awolowo University Ile-Ife and it is at present responsible for the Internet services in the university, in other words, it is a major ICT provider on the campus.

1.3 Information Communication Technology (ICT) in Construction

The modern technology has changed on the whole working structure and configuration of the construction market. "Now the methods of construction engross more enhanced tools and techniques regarding the overall development of the construction business" (Sarshar et al., 2004). This carrying out of the information technology in the field of construction business projected an innovative approach to enhance the construction developments in

the course of utilization of mobility and information technology. This policy intended to build up effectiveness, consequently, reducing expenditure as well as time of the resources facilities procurement practice. It is as well intended to build up the freedom of a structuring or capability, meeting customers' needs. The role of ICT in the vision of the construction business was presented, and a multi-step technique was planned for carrying about a balanced acceptance through the business of IT (Arayici et al., 2005).

1.4 Mobile Information Communication Technology (ICT) in Construction

It is generally decided that the uptake of innovative Information technology inside the construction business is not good enough, predominantly when related to the significant research attempts and expenditure taking place inside this field. In spite of this, there are instances of mobile IT, and still position conscious computing that have been put into practice productively inside the business, and have highlighted how flourishing execution of mobile ICT have added user receiving and established a typical return on deal inside a year of acceptance (Arayici et al., 2005). It is accessed that in the last few years, ICT mobile technology has been functional to a broad scope of procedures inside the construction business. Current instances encompass development records, maintenance evaluations as well as supervision of the base pile sinking. There have as well been instances of position aware computing being employed advantageously inside the construction business (Mitchell et al., 2006). Vehicle tracking by means of global tracking system (GPS) is employed regularly in a lot of fleet administration activities, as well as the upholding of situational knowledge of construction tools.

ICT infrastructure at the construction site has been supposed to be a significant enabler for effective ICT acceptance for building project supervision (Mitchell et al, 2006). Rate of development of ICT acceptance in the last few years has been increased dramatically. On the other hand majority of the respondent organizations did not have a communication administration plan and data examination summarized that SMEs make use of ICT for structuring project management has not accomplished an elevated development level, because their utilization of ICT is for the most part of project execution and not association specific (Arayici et al., 2005).

Successful acceptance of ICT for project management necessitates mutual utilization of ICT among various organizations. On the other hand, it was initiated that the mutual utilization of ICT is fewer as evaluated to inner utilization of ICT inside the association. Data was gathered for communication techniques employed for every recognized project management procedure (Mitchell et al, 2006). Here we need to implement ICT in the different organizational scenarios: we will incorporate the ICT tools for the communication inside the constructional environment (Arayici et al., 2005).

1.5 An Evaluation Model for ICT Investments in Construction Projects

Information and Communication Technology (ICT) has been widely applied across many sectors in order to increase competitiveness and reduce costs (Marsh et al., 2000), and is today seen as a vehicle to gain a competitive advantage (Ives et al., 1991; Earl, 1993). The average annual growth rate of ICT investment in the construction industry is increasing every year and constitutes now a significant part of the total project cost. However, some studies indicate that the ICT utilization ratio is still relatively low in the construction industry. Most construction companies often find it difficult to justify ICT investments in an industry that suffers from low profit margin (Alshawi et al., 2003) and that many managers often view ICT investments as a process of consumption rather than capital expenditure (Irani et al., 2002) and do not realize the importance of evaluating the IT investment (Willcocks et al., 1997).

Moreover, the traditional approaches to evaluate investments have been shown inadequate (e.g. Peacock et al., 2005; Love et al., 2001; Andresen, 1999; Irani et al., 1999; Shank et al., 1992). DeLone et al. (1992) argues that the commonly used benefit and cost analyses are often found lacking due to difficulty of quantifying intangible benefits. However, a great number of researchers have shown the values of using ICT in construction projects (e.g. Dawood et al., 2005, Bouchlaghem et al., 2005; Fischer et al., 2004; Björk, 2001). The process of investment justification has been identified as a major barrier to implementing ICT (Love et al., 2000, Andresen et al., 2000; CIRIA, 1996; Enzweiler, 1996) and because of the growing concern about the effectiveness of information systems expenditure there is an increasing need to re-think approaches to the evaluation of information systems in order to demonstrate business benefits from these investments (Remenyi et al., 1999).

1.6 Evaluating ICT Investments

ICT systems are multidimensional constructs requiring multiple measures to evaluate (Etezadi-Amoli et al 1996; DeLone et al., 1992). Any major ICT investment must be preceded by a careful evaluation of its direct and indirect benefits and costs (Gyampoh-Vidogah et al 1999). Farbey et al. (1999a) defined the evaluation process as "a process that takes place at different points in time or continuously, for searching for and making explicit all impacts of an IT project." Willcocks et al. (1996) define ICT investment evaluation as "Taking a management perspective, evaluation is about establishing by quantitative and/or qualitative means the worth of ICT to the organization." According to Farbey (1992), the evaluation is envisaged to serve different objectives as:

i. Being used as a part of the process of justification of a system;
ii. To enable an organization to make comparisons between different projects competing for resources;
iii. To provide a set of measures that enables the organization to exercise control over the project.

Moreover, evaluation and the subsequent measurement and comparison with actual achievements will provide the learning experience which is necessary if the organization is to improve its system evaluation procedures and development capability.

Evaluation and justification of ICT investments are a complicated process, not only in the construction industry but also in all major industries, since cost and benefits associated with the investment are uncertain and difficult to measure (Ekström et al., 2003). Early estimates, in general, are typically plagued by limited scope definition and are often prepared under time pressure (Trost et al., 2003). Traditionally, specialists in different areas have been engaged in the task of evaluating the benefits and costs of future ICT investments. Many times these specialists have little or no knowledge of the overall consequence of the investment. Andresen et al (2000) describe the IT managers' large influence on the selection of data management systems on which the senior management uses to support their decision making. Specialists such as IT managers have mostly poor understanding of the company's overall business goals and are often excluded from the decision-making process.

Instead of making the analysis of ICT investment the task of a specific profession, general methods and tools should be developed to assist the decision-making process. There are several methods available for evaluating ICT investments spanning from simple computational formulas to complex techniques that comprise both quantitative and qualitative attributes. Traditional early investment appraisal methods, such as Cost Benefit Analysis (CBA), generates non-discounted estimate of benefits and costs, i.e. the cash flow, that the investment is expected to generate. Both the Discounted Cash Flow (DCF) and the Net Present Value (NPV) method calculate the net cost of the investment in monetary terms. TheInternal Rate of Return (IRR) method calculates the discount rate where NPV is set to zero. NPV and IRR are basically used for the same purpose and can be viewed as complementary methods for the purpose of evaluation.

Conducted correctly the IRR and NPV methods should give in an equal estimation of the effect of the investment. One of the most popular methods to use when comparing different ICT investments is the Return on Investment (ROI) method which measures how effectively a business uses its capital to generate profit – the higher the ROI the more profit. The above-mentioned methods are well-established and relatively easy to use.

1.7 The ICT Investment Evaluation Model

The model is intended to provide for a structure and a work routine to be used by a multi-disciplinary working team throughout the process of assessing, planning for and managing the implementation, utilization and follow up of an ICT investment in a project organization. The evaluation presents a gross result. Benefit and cost variables are categorized, quantified in monetary terms and classified, depending on the likelihood of their happening. The model differs from most other financial evaluation tools since it is project oriented and includes intangible benefits, such as process and information quality – which often provides a significant contribution to the final result. Other features include for example risk assessment. Besides presenting a monetary result, the process of carrying out the evaluation also helps the participants to obtain a clear insight into the characteristics and potential of the ICT tool in question as well as the processes and other tools of the project.

The proposed evaluation procedure and risk handling are inspired by the PENG model (Dahlgren et al., 1997). The PENG model has become a popular method in Sweden for evaluating IT investments in companies and organizations. The main difference is that the model proposed in this paper is project oriented and ICT investment "specific". In addition, *ITcon Vol. n (200n), Woksepp and Olofsson,* in the PENG model, the benefit and cost variables and category structure are established by the evaluation group, which means that every evaluation is unique in its disposition, whereas the proposed model provides a predefined structure. I believe that the combination of a pragmatic evaluation procedure and a predefined category structure and variable list makes it easier for users to identify, evaluate and secure not only the tangible benefits and costs but also the intangible and hidden effects of realizing the investment proposal. I also believe that this combination facilitates the implementation process, follow-ups, the re-use of knowledge and the information process as a whole.

1.8 Basic Assumptions

The proposed model is intended to be used in construction projects by multi-disciplinary evaluation teams before an ICT innovation is implemented, during its implementation and afterwards when the results can be assessed. The primary objectives for using the evaluation model are to:

- Facilitate for organizations to justify an ICT investment;
- Facilitate for managers and users to reach a better understanding of the impact of an ICT investment on organizational performance—which can help the organization utilize its resources better (Clemons, 1991);
- Facilitate for managers and users to plan for, monitor and accomplish benefit realization as well as identify potential further benefits;

- Facilitate for managers and users to handle and restrict risk and costs associated with benefit realization; and
- Facilitate for managers and users to gather data for benchmarks that later can be used to provide a measure of the actual implementation success of the ICT investment (Farbey et al., 1992).

The proposed model assumes that all benefits and costs – tangible as well as intangible – can be identified, categorized and measured in monetary terms and that all costs are incurred within the project and all returns (read: benefits) are received by the project.

1.9 The Nigerian Construction Industry

In Nigeria, like most developing countries, the construction industry plays a dominant role in the economic activities of the country. The construction industry is said to have contributed about half of the total stock of fixed capital investment in the Nigeria economy (Olaloku, 1987). The industry also generates employment opportunities which place it second to the Government in the employment of labour (Husseini, 1991). When the construction industry was booming in the 1970's, the country's economy experienced similar effects during that period. However, from early to mid 1980's, the industry experienced a jolt and its effect was felt in all spheres of national life (Isiadinso, 1988).

Buhari (1991) reported that the lull in construction of early 80's was not limited to Nigeria alone. The lull also occurred in Western Europe and America. But the parent companies of these big timers in our midst were not only able to stay afloat the stormy ocean but were able to expand their sales. They were able to do this by initiative, creativity and research. Consequently, the Federal and State governments resorted to taking foreign loans as a quick solution to the problem. However, some of the measures taken by Government in order to revitalize the economy have further aggravated the situation.

2. METHODOLOGY

This study focused on the impact analysis of the role of Information Communication Technology (ICT) in project evaluation and management. The research design used for this study was the Survey method. This is the approach most suited for gathering descriptive information. The data utilized for this study was gotten from both primary and secondary sources as applicable to Costain West-Africa Plc. For the purpose of this study, a purposive sampling technique was adopted. It involves the CEO, Staff, and individuals who are the major staff of Costain West Africa Plc. Based on this, 150 research questionnaires were administered to the respondents to generate the relevant information needed. Data collected in this study were analyzed using regression analytical technique which was was used to test the level of significant difference. The Analysis and Interpretation were based on the given responses to the questions in the questionnaire.

3. PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA

3.1 Presentation

In this study, 150 questionnaires were administered but 100 were returned. The analysis consists of two sections, A and B. Section A consist of respondent bio-data while section B consist of the company's information, on how technology has helped the success of the company, its flaws and its achievement.

Table 1
General Analysis

Official Status	Distribution	Respondent	Cummmulative frequency	Percentage %
Junior staff	75	56	56	56.0
Senior staff	75	44	100	44.0
Total	150	100	100	100.0

Source: Author's compilation, 2016.

The table above shows that data was collected from different level of staff at the head office of the company. Out of the 150 questionnaires distributed, 100 questionnaires were returned of which 56 were from junior staff and 44 from senior staff out of 75 distributed to each of the level.

3.2 Interpretation and Analysis of Data

Table 2
Information Communication Technology Has Played a Vital Role in Your Construction Companies.

		Frequency	Percent	Valid percent	Cumulative percent
Valid	strongly agree	64	64.0	64.0	64.0
	Agree	29	29.0	29.0	93.0
	Disagree	5	5.0	5.0	98.0
	strongly disagree	1	1.0	1.0	99.0
	Undecided	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 2, 93% acknowledge the fact that ICT has played a very good role in the company while 6% disagree and 1% undecided.

Table 3
Relevant Information Has Been Provided With the Use of ICT in Your Company

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	55	55.0	55.0	55.0
	Agree	36	36.0	36.0	91.0
	Disagree	5	5.0	5.0	96.0
	strongly disagree	2	2.0	2.0	98.0
	Undecided	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 3, 91% of the respondents agreed with the statement, while 7% disagreed and 2% were undecided.

Table 4
Has the Company Been Able to Meet Its Goals Without Fully Supported ICT Means?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	18	18.0	18.0	18.0
	Agree	24	24.0	24.0	42.0
	Disagree	43	43.0	43.0	85.0
	strongly disagree	9	9.0	9.0	94.0
	Undecided	6	6.0	6.0	100.0
	Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 4, 52% of the respondents disagreed that with the statement while 42% of the respondents agreed and 6% of the respondents undecided.

Table 5
Information Communication Technology Has Helped in Providing Solutions to Some of the Major Problems Faced In Implementation of Projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	39	39.0	39.0	39.0
	Agree	45	45.0	45.0	84.0
	Disagree	8	8.0	8.0	92.0
	strongly disagree	5	5.0	5.0	97.0
	Undecided	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 5, 39% of the respondents strongly agree, 45% agree, 8% disagree, 5% disagree and 3% undecided.

Table 6
Does ICT Provide Better Customer Services and Satisfaction?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	46	46.0	46.0	46.0
	Agree	36	36.0	36.0	82.0
	Disagree	10	10.0	10.0	92.0
	strongly disagree	5	5.0	5.0	97.0
	Undecided	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 6, 82% of the respondents agreed that ICT provide better customers service satisfaction, 15 respondents disagrees and 3% of the respondents undecided.

Table 7
Does ICT Help You to Deliver and Increase Your Service Efficiently and Effectively?

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	38	38.0	38.0	38.0
Agree	45	45.0	45.0	83.0
Disagree	6	6.0	6.0	89.0
strongly disagree	5	5.0	5.0	94.0
Undecided	6	6.0	6.0	100.0
Total	100	100.0	100.0	

Source: Author's compilation, 2016.

From Table 7, 38% of the respondents agreed, 45% strongly agree, 6% disagreed, 5% strongly disagree and 6% undecided that ICT help to deliver and increase service efficiently and effectively.

4. TEST OF HYPOTHESIS

4.1 Hypothesis One

H_o: Information communication technology has not played a vital role in the construction company.
H_i: Information communication technology has played a vital role in the construction company.

Table 8
Model Summary

Model	*R*	*R* Square	Adjusted *R* square	Std. error of the estimate
1	.038[a]	.001	-.009	.721

Note. a. Predictors: (Constant), sex

The low R^2 (0.01) indicated that the model fit the data well and it is statistically good: meaning there is tight fit of model.

Table 9
ANOVA[b]

Model		Sum of squares	*Df*	Mean square	*F*	Sig.
1	Regression	.072	1	.072	.138	.711[a]
	Residual	50.373	97	.519		
	Total	50.444	98			

Note. a. Predictors: (Constant), sex
b. Dependent Variable: information communication technology has played a vital role in your construction companies.

Table 9
Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	1.525	.227		6.715	.000
	Sex	-.054	.145	-.038	-.372	.711

Note. a. Dependent Variable: information communication technology has played a vital role in your construction companies

Interpretation

R^2 is 0.01 which shows that the independent variable is insignificant by not being able to explain 0.1% of the level of relationship that exists between construction companies and ICT while 99.9% can be explained by the model.

Hypothesis: Reading from ANOVA table, it shows that P value is 0.138 which is greater than 0.05 significance level. Hence, we reject the null hypothesis and accept the alternative.

4.2 Hypothesis Two

H_o: The company has not been able to meet its goal with the full support of ICT.
H_i: The company has been able to meet its goal with the full support of ICT.

Table 10
Model Summary

Model	*R*	*R* square	Adjusted *R* square	Std. error of the estimate
1	.055[a]	.003	-.007	1.081

Note. a. Predictors: (Constant), sex

The low R^2 (0.03) indicated that the model fit the data well and it is statistically good: meaning there is tight fit of model.

Table 11
ANOVA[b]

Model		Sum of squares	*df*	Mean square	*F*	Sig.
1	Regression	.342	1	.342	.293	.590[a]
	Residual	113.294	97	1.168		
	Total	113.636	98			

Note. a. Predictors: (Constant), sex

b. Dependent Variable: the company has been able to meet its goals without fully supported ICT means

Table 12
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.431	.340		7.141	.000
	Sex	.118	.217	.055	.541	.590

Note. a. Dependent Variable: the company has been able to meet its goals without fully supported ICT means

Interpretation

R^2 is 0.03 which shows that the independent variable is insignificant by not being able to explain the level at which the construction company has been able to meet its goals with the help of ICT of relationship that exist between construction companies and ICT while 99.7% can explain the model.

Hypothesis: Reading from ANOVA table shows that P value is 0.293 which is greater than 0.05 significance level. Hence, we reject the null hypothesis and accept the alternative hypothesis which states that construction companies have been able to meet its goal with the full support of ICT.

CONCLUSION

In conclusion, it can be deduced from the findings and the research as a whole that, the role of ICT on project evaluation and management is of immense and essential to any organization. The service of construction companies is enhanced by the role of ICT to store, process and provide information almost instantly. Information communication technology has both their benefits and problems but despite these problems, they still have a key role to play in the activities of construction companies as well as other facet of human life. Also, the benefit of ICT information has not been fully felt in Nigeria, due to the initial cost of installation, power irregularities, inadequate servicing facilities and existence of unqualified personnel.

RECOMMENDATIONS

The following recommendations have been put forward to enhance the effective employment of ICT on project evaluation and management.

(a) Organizations should conduct a feasibility study before installing or using information communication technology.

(b) Organizations should create an in-house ICT educational facility to make their staff ICT literate.

(c) When ICT is employed, there should be controlled as to the input, processing and output to maintain data reliability.

(d) There should be well designed infrastructure components that support Information communication technology i.e. computer rooms, spare rooms, constant power supply and a computer technician for immediate repairs.

(e) There is need for training and production of local experts, which will facilitate growth of technology in the country.

(f) Technology called for high investment in infrastructure. To maximize its benefits, government should do all within its power to halt epileptic power supply in Nigeria.

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