



THE ROLE OF ICT IN IMPROVING SERVICES PERFORMANCE OF BUILT ENVIRONMENT PROFESSIONALS IN NIGERIA

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Abstract

Information and communication technology (ICT) play vital roles in construction services delivery. There is no doubt that ICT improve quality of services delivery in various aspect of human endeavor. While reports on the usage of ICT have been adequately recorded in other areas of human services, very little has been explored by various built environment professionals in their respective construction services delivery. This examines the usage of ICT in construction services delivery by built environment professionals and review of the roles ICT play in enhancing construction services delivery. The study were conducted to sample the opinion of the respondents on some factors affecting the application of ICT on services delivery as well as level of organizations application. Analysis were conducted using percentile, mean score value. The outcome of the analysis shown that over 70 percent of the respondents' quantity surveyors indicate no effective application of ICT in quantity surveying services delivery and it is attributed to low familiarization with Quantity surveyor software application while 50 percent were recorded for Architecture with the same reasons. The key factors affecting the application of ICT on services delivery according to the targeted respondents are lack of consistence workshop/training, availability and easy accessibility of specialized software, poor electricity and organizational interest in adopting innovation with a mean score value of 0.97, 0.91, 0.89 and 0.88 respectively. The paper concluded that the technological innovation in the area of ICT can positively enhances on built environment professional services delivery in Nigeria. The paper recommends among other that the professional bodies in the built environment especially the

Nigerian Institute of Quantity Surveyors and Architecture registration council of Nigeria should periodically organize workshop where participant can be trained in the areas of software application especially the specialized one for efficient and effective services delivery

Key words: *ICT application, Quantity Surveyors, Architecture, Services Performance, Built environment*

Introductions

The advent of information and communication technology (ICT) and its application has improved to a greater extent the services delivery in various aspects of human endeavors. Records have shown that there is a positive transformation of construction business services delivery and other areas of human endeavors with the advent of ICT and its effective applications. In the work of Asogwa, (2006), he pointed out that e-conferencing, internet-based learning and online classes have facilitated dissemination of educational information and have improved the quality of other services lately. Previous researches have also shown that Quantity Surveyors (Qs) have taken the advantage of the advent of ICT in the discharge of their professional services to their various employers. For instance, Olukayode and Koleola (2005) observed that a greater number of Quantity Surveyors have employed the use of ICT in the discharge of their professional duties for almost a decade from now concentrating on the use of spread sheet and Microsoft Word. Despite the rapid growth and development of ICT with unquantifiable impact on the various aspects of human services, built environment professionals have not totally explored the advantages of this development in the discharge of their professional services. In line with this, Patrick (2018) pointed out that the merit of ICT has not been totally employed by the built environment professionals in the discharge of their professional services especially in the area of software application. Castle, (2002) pointed out that the built environment professional's ability to avail themselves with the emerging opportunities provided by the advent of ICT depends on the readiness and willingness in the adoption of new technologies. It is generally believed that the use of computer is a reliable tool in all spheres of its applications. The relevance of computer and computing to the manufacturing and process industries has been documented in many literatures

(Olukayode and Koleola, 2005). Records have shown that advances have been made in various profession when such profession took the advantages of the existence of ICT tool. Therefore, more of the advantages of the advent of ICT are still expected to be harness by the built environment professionals in enhancing their potential by exploring the opportunities for efficient and effective construction services delivery. Rivard et al in Oladapo, (2006) have identified the vital role information plays in all construction project processes as the specification of the resulting product and the initiation and control of the activities required for constructing the facility can be managed through the use of ICT. The design consultants, which include the Architect and the quantity surveyor acting in a capacity as professional advisers to client are largely responsible for the production and dissemination of both the design and management information among the various project participants. It is important that built environment professionals harness the advantages of the ICT tool for efficient and effective services delivery.

The increasing adoption and the use of the ICT in work practices however necessitated the development of different specialized software packages for performing the array of tasks involved in the practice of Architecture and quantity surveying profession (Adeoye, 1996). Unfortunately, while there are reports of the use of ICT in various facets of human services in the developed countries like Unites State and Canada, the developing countries like Nigeria are still far behind in the full exploration and the use of ICT. This is because the majority of process information are still heavily based upon traditional means of communication such as face-to-face meeting.

Adequate application of the ICT will improve productivity and quality of service delivery in the built environment. This can be seen in Olise, (2010) viewing ICT as new technology that cannot be ignored in Africa especially for quality education and services performance with the reason been that ICT helps stimulate development and change in the digital era. Asobie, (2006) also highlighted the importance of ICT on services delivery such as accelerating performance, encouraging independent, knowledge and instructional practices etc. In addition to these application of ICT to what may be termed the traditional domains of the architectural, engineering and quantity surveying profession, there are some emerging new area of ICT innovations which must be embraced

by the built environment professionals for efficient and effective services delivery and performance.

Research Objectives

This study is conducted with the aim identifying the roles of ICT in improving the services performance of built environment professionals in Nigeria with focuses on Architecture and Quantity Surveying professionals. Part of the objectives for this study among others is to appraise certain factors affecting the use of ICT in improving services performance of the built environment professionals in Nigeria

Research methodology

This study was conducted by selecting ten (10) Quantity surveying firms and ten Architectural firms located in Abuja and Kaduna state to generate information on the area of study with the view of assessing the role of ICT on services performance. A total number of eighty (80) questionnaires were administered to these targeted respondents to obtain data and information relevant to the study with 40 questionnaires each to Architecture and Quantity surveying firms

Thirty five (35) copies of the questionnaires were retrieved and properly completed from each firms representing 88% response rate. The questionnaire is prepared to have two parts. Part one sought background information as well as the experience of the respondents and part two sought information about the research area. The data generated were analyzed using percentile and mean score value to rank variable interest in accordance with respondents' responses. The variable measured are:

Level of usage and proficiency in the use of ICT for services delivery, the impact of ICT on services performance, factors affecting the use of ICT via software application by built environment professionals. The data were analyzed using percentile, average mean and mean score value

Data Presentation, Analysis and Discussion

Table 1: show the years of Respondents working experience

Years of Experience	Respondent architect		Respondent QS	
	Nr	%	Nr	%
1-10	12	34	13	37
11-20	12	34	15	43

21-30	8	23	5	14
31-40	3	9	2	6
Total	35	100	35	100

Source: field work 2020

From table 1 above, over 60 percent of the respondents Architects and quantity surveyors had over ten years of working experience. This shown that the information for this study are collected from well experienced professionals from the built environment upon which adequate judgments can be deduced.

Table 2: Show the number of respondents with usage of ICT in construction services delivery

ICT COMPLIANT	Respondent Architect		Respondent QS	
	Nr	%	Nr	%
YES	26	74	22	63
NO	9	26	15	37
TOTAL	35	100	35	100

Source: fieldwork 2020

74 percent of the total respondent Architects claimed to have the effective knowledge and use of ICT proficiently on construction services delivery while 26 percent are still not effective ICT compliant. In the same vain, 63 percent of respondent Quantity surveyors claimed to have effective knowledge and use of ICT on construction services delivery while 37 percent are not. This is a clear indication that quite number of the built environment professional are familiar with ICT and it usage on the construction services delivery.

Table 3: Area conversant in the application of ICT for construction services delivery

	Parameter											
	Architect microsoft word		QS Microsoft word		Architect Microsoft excel		QS Microsoft excel		Architect Specialized software		QS Specialized software	
Response rate	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
YES	30	86	32	91	22	63	30	86	12	34	5	14
NO	5	14	3	9	13	37	5	14	23	66	30	86

TOTAL	35	100	35	100	35	100	35	100	35	100	35	100
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Source: fieldwork 2020

Table 3 above shown analysis of the respondent’s response on the familiarities and conversant with the use of software applicable to construction services delivery. The result of the analysis shown that over sixty percent of the respondent architects are only conversant and familiar with the use of Microsoft word and Microsoft excel in the discharge of their construction services while over 80m percent of the respondent quantity surveyors are also only familiar and conversant with the use of Microsoft word and Microsoft excel in the discharge of their construction services.. Only 14 percent of the respondent quantity surveyors claimed to have conversant with the use of the quantity surveying specialized software while 34 percent of the respondent architect claimed to be conversant with the use of specialized software. This shown that the built environment professionals are yet to explore and harness the full potential of Information and Communication Technology in a total transformation of services delivery in the built environment.

Table 4: Respondents response on the factors affecting the usage of ICT on construction services delivery, architect and quantity surveyor perspectives

Factors	Nr of respondents		Percentage		Mean score value	Rank
	Yes	No	Yes	No		
Workshop/training not readily available	67	3	96	4	0.97	2
Availability of the specialized software	62	8	89	11	0.91	3
Poor electricity supply	60	10	86	14	0.89	4
Organizational willingness in adopting innovation	59	11	84	16	0.88	5
Lack of personal interest	57	13	81	19	0.85	6
High cost of software	55	15	79	21	0.85	6

Difficulty in application	52	18	74	26	0.80	8
Computer phobia	50	20	71	29	0.79	9

Source: fieldwork 2020

From table 5 above analysis was conducted on the factors affecting the usage of ICT on construction services delivery based on the architect and quantity surveyor responses. The leading factor affecting the application of ICT in construction service delivery are; non frequent availability of workshop where training and re-training are conducted to various interested participant to enhance the understanding in the application of ICT in services delivery with a mean score value of 0.97. This is followed by the readiness of an organization in adopting innovation that could enhance construction services delivery and poor electricity supply with a mean score value of 0.91 and 0.89 respectively.

Table 6: Show the Quantity surveyor's and architectural organizational attitude to ICT application on construction services delivery.

Variables	No of respondents	percentage
Very effective application	0	0
Effective application	3	4
Somewhat effective application	17	24
No effective application	50	72
Total	70	100

Source: fieldwork 2020

Analysis in table 6 above revealed that over seventy percent of built environment professional organization still underutilized the advantages of ICT in discharging their functions in construction services delivery. This is supported by the zero percent scored of the variable 'very effective' in table 6 above.

The roles of ICT in improving services performance of built environment professionals in Nigeria

The roles of ICT in improving services performance of the built environment professionals in Nigeria have been identified as follows:

- Saves time
- Improve service quality
- Enhances competitive advantage
- Improve productivity
- Easy method working
- Improve organizational image
- Remote accessibility
- Creation of new job
- Effective method of communication
- Globalization of services
- Enhance services accuracy
- Reduces cost of services
- Save energy
- Reduce work fatigue

Conclusion and Recommendations

From the analysis carried out in this study it can be concluded that the information and communication technology has great role to play in construction services delivery. The study revealed that the major severe reason for non-application of ICT on the construction services delivery in the Nigerian is attributed to lack of workshop/training which is not readily available and the availability of the specialized software package as well as the organizational interest and willingness in adopting innovation. The epileptic power supply in Nigeria is also seen to be one of the factors affecting the application of ICT in services delivery.

It is also part of the study finding that the organization show no effective attention to employ, encourage and improve the application of ICT especially the use of specialized software in services delivery. The study revealed that full application of ICT on will not only enhance timely and quality of services delivery but also create avenue for services delivery simplicity and wide scope

of services accessibility. Therefore, it is our believe that this study exposes the fundamental needs for equipping the construction organization with the ICT infrastructural facilities that will meet the test of time and make available all necessary ancillaries and create conducive environment for it usage.

Based on the forgoing findings the following recommendations are proffered:

- The professional bodies in the built environment especially the Nigerian Institute of Quantity Surveyors should periodically organize workshop where participant can be trained in the areas of Quantity surveying software application for efficient and effective

Services delivery

- organizations should encourage the adoption of any innovation and also encourage the total application of ICT especially the application of Quantity surveying specialized software for effective services delivery

- Government should also work hard in the area of power supply as it is one of the major requirements for functional information and communication technology facilities and create enabling environment for ICT application to strive.

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