

Focus Group Discussions on the Adoption of Information Technology and Innovation in Quantity Surveying Practice and Education in Nigeria

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Abstract

Information Technology (IT) and Innovation have significant implications for modern-day quantity surveying practice and education. Timely paradigmatic changes in sync with evolving technology are necessary for quantity surveyors to retain competitive advantage amidst the discernible friction and strive for professional dominance amongst construction industry professionals. However, for such paradigmatic changes to occur, there is a need for quantity surveyors to understand the benefits derivable from the use and value of recent innovations in improving their job performance. This study uses a focus group discussion approach to X-ray the challenges/barriers currently facing Nigerian quantity surveyors at individual, organisational, and institutional levels in adapting to changes in IT and innovations, identify opportunities for further growth and innovative capacity, and proffer recommendations thereon, necessary to bridge the existing gap. Recognizing the need to champion, facilitate and promote IT and innovation in the various spheres in which the Nigerian quantity surveyor operates, the focus group discussions were organised in groups made up of quantity surveyors in Academia, Private Practise, Public Service, and other related industries. The outcome of the focus group discussions was a unanimous call for a paradigm shift in the quantity surveyor's traditional mode of practice to reflect the changing realities of the 21st century IT and Innovation age, necessary to maintain relevance in today's competitive market. Quantity surveyors should strive to accommodate new development and innovations, as well as think outside the box. Innovative strides in quantity surveying practice should be targeted at attaining ease of process, promoting transparency, and achieving better value for money. Conscientious efforts should be made at individual, organisational, and institutional levels to be at par with emerging trends in IT and innovation.

Keywords: Focus group discussion, information technology, innovation, quantity surveying, education in Nigeria

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Received Date: March 23, 2023

Accepted Date: March 30, 2023

Published Date: April 12, 2023

Citation: Alolote Amadi. Focus Group Discussions on the Adoption of Information Technology and Innovation in Quantity Surveying Practice and Education in Nigeria. NOLEGEIN Journal of Information Technology & Management. 2022; 5(2): 5–10p.

INTRODUCTION

Information Technology (IT) and Innovation remain the bedrock of societal advancement. Their impact and implications for modern-day professional practice and education cannot be overemphasized. IT and innovation have brought waves of change which must be embraced by quantity surveyors in practice and education in Nigeria, for the profession not to lose its relevance and niche in today's rapidly evolving technological frontiers [1]. Timely paradigmatic changes in sync

with evolving technology are necessary for quantity surveyors to retain competitive advantage amidst the discernible friction and strive for professional dominance amongst construction industry professionals. However, for such paradigmatic changes to occur, there is a need for quantity surveyors to understand the benefits derivable from the use and value of recent innovations in improving their job performance. Typically, early works such as by Davis, who reiterated that the recognition of the benefits of innovation is a key factor affecting the acceptance of technology [2]. Similarly, Kleijnen *et al.* posited that usefulness is key to the acceptance of new technology [3]. On an individual basis, Davis believed that individuals readily adapt to using new technology if they consider them useful to their career advancement. However noted that irrespective of people's perception of the usefulness of new technology, the perceived ease of use, i.e. the challenges associated with learning and working with new technology, may deter their deployment. In addition, other factors such as the perceived risks and cost of such technology can influence the extent to which technology is readily adopted. Within organizational and institutional settings, the availability of skilled manpower and requisite financial resource can impact its readiness to adopt new technology. Furthermore, the compatibility of the new technology with the existing conditions and inhouse regulations plays a moderating role in the level of acceptance of new technologies [4].

Irrespective of these barriers, competitive pressure to survive and retain market share often dictates an organization's readiness to adapt to new technology [5]. Against this backdrop, this study uses a focus group discussion approach to X-ray the challenges/barriers currently facing Nigerian Quantity surveyors at individual, organisational, and institutional levels in adapting to changes in IT and innovations, identify opportunities for further growth and innovative capacity, and proffer recommendations thereon, necessary to bridge the existing gap.

METHOD OF STUDY

Focus group discussion is a regularly used data collection approach often deployed to gain an in-depth understanding of topical issues [6]. Cornwall and Jewkes considered focus group discussions as a bridging strategy for scientific research and local knowledge [7]. As opposed to the use of representative sampling from a wider population, focus group discussions are selectively pitched to a selected group of individuals, adjudged to be knowledgeable about a topic. Focus group discussion is often used interchangeably with group interviews. However, unlike interviews, the researcher adopts the role of a facilitator as opposed to an investigator. The researcher in focus group discussions, therefore, takes a peripheral role, instead of the centre-stage role of an interviewer [8].

In this study, the focus group discussions, as facilitated by the researcher, were carried out at the 3rd Plenary session of the 2019 Quantity Surveyors Registration Board of Nigeria (QSRBN) annual assembly, which dwelt on the theme "The Role of IT and Innovation in Creating Competitive Advantage for Nigerian Quantity Surveyors" [9]. The focus group sessions were organised, to deliberate on this theme, with a view to X-ray challenges/barriers currently facing Nigerian quantity surveyors, identify opportunities for further growth and innovative capacity, and proffer recommendations thereon, necessary to bridge the existing gap. Recognizing the need to champion, facilitate and promote IT and innovation in the various spheres in which the Nigerian quantity surveyor operates, the focus group discussions were organised in groups made up of quantity surveyors in academia, private practice, public service, and other related industries. Group discussions lasted approximately 30 min, the outcome of which was a unanimous call for a paradigm shift in the quantity surveyor's traditional mode of practice to reflect the changing realities of the 21st century IT and Innovation age, necessary to maintain relevance in today's competitive market [10].

FINDINGS

Against the preceding backdrop, the focus group discussions spotlighted the barriers and implications of IT and innovation in creating a competitive advantage for Nigerian quantity surveyors in the following domains.

Public Sector

- IT and Innovation in the public sector are constrained by bureaucratic bottlenecks, which stifle creativity. Public sector project delivery should strive to encourage a culture of visionary and imaginative thinking, along with strategic reasoning which promotes alliance amongst construction professionals as well as between private and public sectors [11].
- It is believed that numerous inefficient software have flooded the Nigerian market, which has aggravated the inability of quantity surveyors to identify software suitable for carrying out defined work tasks. To overcome this barrier, a listing of available software and their capabilities should be made by the Nigerian Institute of Quantity Surveyors. Furthermore, a collaboration between the Quantity Surveyors Registration Board of Nigeria and relevant IT departments is needed to sieve through the lot, make recommendations on approved software, and further modify approved software to the needs of quantity surveyors in public sectors.
- As expenditure associated with acquiring software for Quantity Surveying staff may not be perceived as justifiable in public organisations, it is mandatory that personnel in public organisations, particularly top management, are enlightened on the necessity of acquiring software, along with making provision for in-house training of staff.
- Paper pushing and correspondence via memos are outdated and as such should be phased out. It is recommended that electronic correspondence via systems networking and official e-mailing platforms be provided, to promote quick and effective communication. Further to this, training of staff on the use of such facilities should be provided.
- As quantity surveyors do not directly handle the typing and editing of Bills of Quantities and related documents, the authenticity and accuracy of work carried out by secretarial staff remain in doubt. In this vain, it is recommended that basic computer literacy and the ability to use related technology is a must for quantity surveyors. This should thus constitute a prerequisite for employment at entry-level quantity surveying jobs. Furthermore, continuous professional development and on-the-job IT training of quantity surveyors is necessary to enhance their competencies and innovativeness.
- Procedures and modes of documentation currently being used by Quantity Surveyors are outdated. An IT/e-platform should be adopted for carrying out manually implemented quantity surveying tasks. Typically, reference can be made to the World Bank's use of E-procurement to cut short clerical tasks that would otherwise have been performed by Quantity surveying professionals.
- Poor knowledge and grasp of the use of Computer Aided Design amongst Quantity Surveying Professionals is a fundamental factor prohibiting the digitization of core work tasks such as measurement and bill preparation. This is despite the demonstrable advantages implicit in automated quantity generation and the speed of computations attainable with such methods. There is a need for quantity surveyors to actively display interest and proactiveness in acquiring IT-based knowledge, particularly as it pertains to the profession.

Private Sector

- Quantity surveying as a process-oriented discipline underscores the need for professionals to continuously strive to be the best in service delivery, by innovating and constantly seeking ways to meet and exceed clients' expectations. Quantity surveyors should thus desist from clinging to old methods of operation but rather strive to be dynamic and willing to adapt to the demands of the changing times, higher client expectations, and technological advancement.
- Although the need for radical innovations is encouraged to boost the competitive advantage of Quantity Surveyors in Nigeria via improved speed and precision, such Innovations should be made bearing in mind:
 - The product environment, consumer behaviour/needs, and the economy of the Nigerian setting. As such, innovations should be readily understood and affordable to the regular client/consumer base in local markets;

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- That such innovations should be incremental and not repetitive, i.e. build on the already existing knowledge base;
 - That there should be some form of standardisation or benchmark;
 - That they should not be personalised, but rather should strive to link up with other current innovations.
 - Collaboration between quantity surveyors and other professionals should be fostered. It is thus necessary that quantity surveyors start from first principles to be at par with other professionals, and further form alliances targeted at promoting innovation.
 - Policies should be formulated to protect intellectual property and copyrights. This is necessary to promote innovative drive amongst quantity surveyors and prevent theft of knowledge. In this vain, professional protocols and standards should be emphasized and enforced to prevent conflicts and create a level platform for all forms of innovations.
 - The adoption of Building Information Modelling (BIM) should be on an industry-wide scale. To facilitate such a transition, a new collaboration between government policymakers, the Quantity Surveyors Registration Board of Nigeria, and The Nigerian Institute of Quantity Surveyors is necessary for the formulation of policies regulating the effective deployment of (BIM) and wider IT usage in the Construction Industry. This is against the backdrop of the BIM-centric approach to project management currently dominating the global discourse and industry practice.
 - There is a need for adequate training of upcoming quantity surveyors in institutions of higher learning beyond basic ICT skills, to the use of Industry based software, which is necessary to ensure their relevance in today's construction industry.
 - Quantity Surveyors must strive to be knowledgeable about recent IT developments and innovations trending in the industry, and be able to decipher from the lot, what is authentic and value-adding to the profession.
 - A data bank chronicling innovations and significant milestones in the industry should be maintained as a joint effort between the Nigerian Institute of Quantity Surveyors and the Quantity Surveyors Registration Board of Nigeria. This should constitute a database from which further innovations and development can spring forth.
 - Innovative drive in the quantity surveying profession should not be limited to practicing professionals but should span across institutions of higher learning and research Institutes. The Quantity Surveyors Registration Board of Nigeria should thus be at the forefront of the drive encouraging the development of software and writing of programs specifically tailored to the needs of the Nigerian construction climate.

Academia

- Opportunities exist for the use of IT and innovation in teaching quantity surveying via:
 - The deployment of lectures electronically, outside traditional classroom teaching. Tools such as webinars and video-based conferencing tools can be explored in this regard, to promote greater ease and flexibility in the teaching and learning of Quantity Surveying;
 - The adoption of a virtual learning platform that links lecturers and students as well as professional content to improve and personalize instruction and learning of Quantity Surveying;
 - The more effective use of audio-visuals in classrooms, prepared by IT experts. Audio-visual aids such as interactive displays, boards, and projectors are necessary to promote interactivity between the displayed content and the student, thereby improving students' comprehension, critical thinking, and analytic skills.
 - It is thus recommended that:
 - Institutional support as well as intentional effort on the part of lecturers are needed to explore and deploy IT and other innovative teaching methods in classrooms.
 - Efforts should be made to bring both academics and practitioners to classrooms to deliver practice-oriented lectures that expose upcoming quantity surveyors to ICT opportunities.
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- Fields of study such as ICT and mathematics, which are pivotal to Quantity surveying, should be domesticated as much as possible. to their applications in quantity surveying. Academics/departments need to maintain a proactive momentum to this effect.
- There is a need for capacity building in the core skills needed to align the quantity surveying skill set with an IT-compliant platform.
- ICT courses in institutions of higher learning should not be limited to a semester but should traverse the entirety of the training period.
- Efforts should be made to take advantage of all available IT training opportunities, outside the classroom.
- Opportunities exist for the use of IT and innovation in quantity surveying research via:
 - The digitization of research supervision is necessary to foster close supervisory relationships between students and their research supervisors as it minimises delays in relaying feedback.
 - Improved access to internet-based resources. This is mandatory to promote sound research in quantity surveying and for keeping abreast with current innovations and developments.
 - More originality in quantity surveying research. Research in quantity surveying should demonstrate elements of ingenuity, creativity, and rigour, and should not duplicate previous research.
 - Less theoretical and more practical research to add value and clearly demonstrate identifiable benefits to the profession and society.
- It is recommended that:
 - The Nigerian Institute of Quantity Surveyors be at the forefront of providing a platform for researchers to access relevant academic content by subscribing to non-open access local and international journals, books, and conference proceedings.
 - A methodology should be identified/developed for aggregating existing research, evaluate the originality of research, control plagiarism, and prevent research overlap.
 - Research should be practical and solution/result-oriented to drive innovations. This should be matched with the provision of an institutional platform to encourage technological feedback and synergy between academia, research Institutes, and Industry.

As the scope of the Quantity Surveying profession is fast expanding, it is important that the curriculum is adapted to reflect such changes. The inherent tendency to retain the status quo should be resisted, via the continuous updating of academic curricula in higher institutions to reflect recent and future developments, as well as mapping out innovative courses. It is thus necessary to overcome administrative restrictions in inculcating novel ideas in the Curriculum. NUC/NBTE are minimum standards, as such, there is room to update the curriculum to suit societal needs and reflect recent/future developments.

Other Related Industries

- Quantity Surveyors need to go digital to gain a competitive advantage. Such moves should parallel the identification and elimination of non-value-adding activities. Typically, such avenues include:
 - The adoption of electronic tendering, whereby an e-portal is created for tender submission and feedback.
 - Use of software in carrying out measurement and generating Bills of Quantities.
 - Application of ICT in other areas of the Quantity Surveyor's job description, such as contract administration, procurement, valuation final account preparation, life cycle costing, etc.
 - The adoption of BIM technology as a package-deal solution for the pre and post-contract monitoring and control of projects.

Quantity Surveyors should explore commercial opportunities that can be generated through innovative ideas. Such innovations should be hinged on the tenets of best practices bespoke to the Nigerian culture and should further constitute a mechanism of feedback on lessons learned in practice.

CONCLUSION

Overall, there should be less resistance to change. Quantity surveyors should strive to accommodate new development and innovations, as well as think outside the box. Innovative strides in Quantity Surveying practice should be targeted at attaining ease of process, promoting transparency, and achieving better value for money. Conscientious efforts should be made at individual and institutional levels to be at par with emerging trends in IT and innovation. More effort should be put into acquiring soft skills such as critical thinking/problem-solving skills, as well as entrepreneurship skills with a mindset embracing the notion of lifelong learning and investing in the necessary technology. At an institutional level, the readiness and preparedness of public parastatals to embrace IT and Innovation remain in doubt. To this effect, it is recommended that a unit should be set up, and designated to monitor IT compliance in schools and ministries. Private sector IT inclination and initiative, on the other hand, need to be self-driven given the fast-paced, dynamic and highly competitive, and adversarial nature of the construction industry if they are to remain relevant.

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