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Original Research Article

Exploring the Sustainable Benefits and Measures for Enhancing Quantity Surveyors' Involvement in Construction Projects: The Case of Nigeria

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Abstract: ***Purpose*:** Widespread concerns have led to calls by industry practitioners and the academic community on the need to involve QS in construction projects. This study therefore explores the measures for enhancing QS involvement in construction projects in Nigeria. The paper also provides insight on issues and sustainable benefits of QS involvement in construction projects. ***Design/Methodology/Approach*:** The mixed-method (quantitative and qualitative) research was applied to the study. 70 questionnaires and 15 interviews from QS practicing in Nigeria formed the basis for the data. Mean item score and thematic analysis were used to analyze the data. **Findings:** The study reveals poor marketing of the profession, political connections, lack of public awareness on QS roles, Government policies, corrupt practices by parties' involved and conservative attitude as major issues hindering QS involvement. The study also deduces that socio-economically and financially, QS involvement can result in cost control and management, minimization of financial risk, dispute settlement, economic growth and, transparency/accountability. Environmentally, QS involvement can boost material waste management, use of sustainable materials, mitigate environmental risk, and encourage a circular economy in Nigeria. Therefore, the author finds and recommends that government policy regulating QS involvement, professional training for QS proficiency, and research and technological innovations are measures needed to enhance QS involvement in construction projects across Nigeria. ***Originality*:** The paper provides industry and policy guidelines towards the enforcement of QS involvement by the Nigerian Government. The sustainable benefits of QS involvement proffered in this study will contribute to re-positioning the profession in Nigeria.

Keywords: Quantity Surveyors' Involvement; Construction Projects, Sustainable Benefits, Improving Measures, Nigeria.

1. INTRODUCTION

The construction industry has encountered numerous challenges including project termination, time and cost overrun, financial loss, cancellation or delay of contracts, employee workforce reduction, difficulties in completing project deliverables within the schedule, increase in claims and disputes, and low productivity (Wanigasinghe *et al.,* 2024). Within the Nigerian space, the country is faced with severe challenges in construction due to changing clients' demands, expectations and project complexities, perennial cost constraints, time overruns and poor quality (Isang, 2011). In addition, construction activities in recent years have raised sustainability issues, building collapse, and safety concerns, thereby affecting the industry's performance and productivity (Isang *et al.,* 2024). The foregoing demonstrates the need to rethink construction project approach through more involvement of construction professionals such as the QS. The QS is a key stakeholder in construction because of its professional involvement in managing, planning, and delivering projects, thus a QS plays a crucial, and definitive function that impacts project success (Eyiah-Botwe *et al.,* 2015). Ogunsina, *et al.,* (2018) noted that, QS has experienced developmental changes from measurement-oriented background to the current position where QS' are accepted as financial specialist and advisers in the construction industry in countries where their expertise are recognized. The

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Nigerian Institute of Quantity Surveyors (NIQS) (2004) defines the QS as an expert concerned with financial probity in the conceptualization, planning and execution of development projects, in both new and refurbishing works. This, Oladotun and Edosa (2017) observes, makes QS one of the professions that have seen unprecedented demand recently due to its expanding potential for service diversification and adaptability. This infers that the wide construction cost and management capability of the QS is catalytic to economic development in Nigeria. However, Ndanusa (2004) opined that QS more than any other profession among the built environment profession, is facing numerous challenges which must be tackled head-on if our future is to be guaranteed. Against this backdrop, the Nigerian Institute of Quantity Surveyors (NIQS) has called for greater involvement of QS in all construction projects nationwide, while also emphasizing their role in ensuring accountability and implementing essential checks and balances (Punch, 2024).

Ahmad *et al.,* (2022) concurred that the QS profession has suffered a lot of set-backs, and low patronage by public clients in Nigeria is discouraging due to misconception about QS role and name, poor marketing strategy, usurpation from sister professions, conservative attitude, among other factors. The authors also noted that, the non-involvement of QS by informal clients in major cities in Nigeria has resulted in many building projects not attaining success due to cost overruns and resource wastage. As a result, though the QS profession has been of interest to Nigerian stakeholders, the sustainability of construction projects, productivity and the industry's performance are all affected due to the non-involvement of QS in construction projects in Nigeria. The effect in the country is evident in QS services in construction projects not being fully involved and under-appreciated. This is as a result of poor marketing of QS profession, opposition from engineers, the dominance of multinational companies that do not have quantity surveying as a distinct profession in their country of origin, widespread corruption in Nigeria and professional incompetence of some QS (Ogunsina, *et al.,* 2018).

One of the common perceptions about QS involvement in construction project appears to be that competency plays a crucial role (Babalola, 2009; Hassan *et al.,* 2011; Ogunsina, *et al.,* 2018; Wanigasinghe *et al.,* 2024). Babalola (2009) defined a competent quantity surveyor as one who is expected to possess a range of skills, knowledge and understanding and be able to apply these skills and knowledge in a range of context and organization. Therefore, as the QS profession and construction practices is significantly changing in the construction industry, it is required that the competencies of QS should evolve (Hassan *et al.,* 2011). Several studies have suggested ways to increase QS' involvement in construction projects in Nigeria. Wanigasinghe *et al.,* (2024) recommended aligning QS practices with emerging industry trends and technological advancements to ensure project success, and embracing digitalization to navigate future uncertainties effectively. Ahmad *et al.,* (2022) suggested effective awareness strategy and more studies to sensitize Nigerians on the advantages of patronizing QS services for cost management services. Oladiran (2013) proffered integration of QS roles in students' curriculum for good understanding of QS roles and benefits. Oke *et al.,* (2010) noted that, the beneficial aspect of QS involvement reduces cost of construction, project delivery to time, faster and more effective project management, and reduction in disputes. Overall, QS involvement will ensure that national resources are judiciously managed and development goals are met with integrity and professionalism. Therefore, in as much as Nigeria is advancing towards a sustainable construction industry, the involvement of QS in construction projects can drive the environmental, economic and social impact of construction activities on the society (Isang, 2023; Ebiloma, *et al.,* 2024). While extant studies have established the factors confronting QS practice (Ndanusa, 2004; Oladiran, 2013; Oladotun and Edosa, 2017; Ogunsina, *et al.,* 2018; Ahmad *et al.,* 2022), there remains a paucity of studies on strategies to propel the involvement of QS in Nigeria. To fill this research gap, this study explores the measures for enhancing full involvement of QS in construction project delivery. To achieve this aim, three objectives were posited for the study:

i. Identify the issues hindering QS involvement in construction projects in Nigeria.
ii. Examine the sustainable benefits of QS involvement in construction projects in Nigeria.
iii. Develop measures for enhancing QS involvement in construction projects in Nigeria.

2. LITERATURE REVIEW

2.1 Overview of Quantity Surveyors' Involvement in Construction Projects in Nigeria

The construction industry is considered the world's largest industrial employer. In Nigeria, the industry is one of the core contributors to economic growth, employment opportunities and a major indicator of the country's wealth. Shola and Abdulazeez (2020) estimated that over three million people work in the industry in various capacities as professionals. Due to the nature of the construction industry, Babatunde *et al.,* (2012) noted that, the industry embraces a wide range of activities, products and skills. This includes design, building, civil engineering, oil and gas, heavy engineering, consultancy, and manufacturing. The execution of these projects is adjudged successful if it is completed to time, within the budgeted cost and meets the client's expectations. As such, one of the professionals that ensure the actualization of this goal is the QS. The constantly evolving, definition and roles of QS have been captured by (NIQS, 2004; Ogunsina *et al.,* 2018; Ahmad *et al.,* 2022; Wanigasinghe *et al.,* 2024). For instance, the NIQS (2004) defined a quantity

surveyor as an expert professionally trained and experienced, in dealing with construction cost, construction management and construction communication. Wanigasinghe *et al.,* (2024) observed that QS are construction economists who plan cost-effectiveness throughout the pre-construction to post-construction stages. Furthermore, every phase of a construction lifecycle, including feasibility, design, construction, extension, and maintenance is essentially performed by QS.

The QS' desire to transcend traditional services in construction projects in Nigeria is evident in the NIQS' vision; "to take responsibility for total cost and procurement management for the achievement of clients' objectives in all types of capital projects and developments from conception to commissioning and maintenance, in all sectors of the economy to the attainment of sustainable national development and goals" (Ogunsina *et al.,* 2018). However, despite this position, the non-involvement of QS in construction projects is a cause of concern in the industry. These have led to a decade long calls by the NIQS, practitioners and researchers to involve QS in all construction projects across the country (Ndanusa, 2004; Oladiran, 2013; Ahmad *et al.,* 2022; Punch, 2024). Ahmad *et al.,* (2022) affirmed that the non-involvement of QS by informal clients in major cities in Nigeria has resulted in many building projects not attaining success due to cost overruns and resource wastage. As a result, though the QS profession has been of interest to Nigerian stakeholders, the sustainability of construction projects, productivity and the industry's performance are all affected due to the non-involvement of QS in construction projects in Nigeria. The involvement of QS in construction projects can lead to improved project management practices, strengthened regulatory oversight, transparency and accountability in infrastructure development. QS involvement will also ensure that national resources are judiciously managed and sustainable development goals are achieved with integrity and professionalism. This underscores the critical role of the QS in ensuring that projects are delivered to the highest standards of efficiency and sustainability. However, the Qs profession will require competency in possessing and applying a variety of skills, knowledge and understanding in project management, contract administration, computer literacy, building engineering, information technology, economics, measurement/quantification and knowledge of civil/heavy engineering works and risk management, claim management, financial management, and building information modelling coordination (Babalola, 2009; Wanigasinghe *et al.,* 2024).

Oladiran (2013) examined the extent of QS' involvement in construction projects' execution in Nigeria. The paper adopted a quantitative survey. The population consisted of construction professionals in private firms based in Lagos state. The study revealed that lack of public awareness of the roles of QS, corrupt practices by parties involved, infiltration of quacks, government policies, inter-professional rivalries and lack of adequate education influences QS' involvement. The study recommended the creation of more awareness, and the integration of QS roles in students' curriculum. The significance of this research lies in proffering the importance of understanding the roles and benefits of QS' involvement in construction projects. Therefore, this study and will seek to determine the benefits of QS involvement in construction projects in Nigeria.

Ahmad *et al.,* (2022) assessed the factors responsible for low patronage of QS services in Nigeria. The questionnaire survey was applied to the study. The study revealed that most of the clients are not aware of the services offered by QS. Key findings from the study showed that misconception about QS role and name, poor marketing strategy by QS, usurpation from sister professions, and conservative attitude of QS, inadequate number of QS, unethical professional practices, and poor adoption of modern technology constituted the barriers. The study recommended the application of effective awareness strategies and more studies on how best to sensitize Nigerians on the advantages of patronizing QS services for cost management services. However, while the study identified the factors responsible for low patronage of QS services in Nigeria, it did not explore effective measures that could drive QS' patronage. To fill this gap, this research aims to evaluate measures to enhance QS involvement in construction project delivery process in Nigeria. Based on this rationale, this paper identifies issues hindering QS involvement, it further determines the benefits of QS involvement, and develops measures to enhance QS involvement in construction project delivery in Nigeria.

3. RESEARCH METHODOLOGY

The study adopted the mixed-method research (MMR) design. The MMR or what is broadly referred as mixed research, interweaves qualitative and quantitative data. Doyle *et al.,* (2009) observed that the MMR helps answer the research questions that cannot be answered by quantitative or qualitative methods alone, and provides a greater repertoire of tools to meet the aims and objectives of a study. The triangulation of MMR methodology was used to enable the author to gain a more complete understanding of the research objectives. The respondents were all practicing QS in the NCI. These set of respondents were chosen due to their profession, experience and active participation in the industry. In using the mixed research, Creswell and Plano Clark (2018) stated that having a small size in qualitative component and larger size in quantitative component, supports researchers to get an in-depth qualitative exploration and rigorous quantitative examination of an issue. In view of this understanding, for the quantitative approach, the study's sample was derived from the latest directory of the Nigerian Institute of Quantity Surveying (NIQS) which reports 4000

qualified members practicing in Nigeria (NIQS, 2024). A total of 120 questionnaires were distributed to the QS, out of which 70 duly completed questionnaires representing a 58% response rate were returned. Purposive sampling, which involves identifying and selecting individuals based on their knowledge or experience about a phenomenon under investigation (Oladokun *et al*., 2022), was used for the study. The study was conducted in Akwa Ibom, Abuja, Bayelsa, Lagos and Rivers states between July to November 2024. These cities were chosen based on the nature of various construction projects it commands. In addition, most of the professional bodies' and construction-based practitioners have either their head office or liaison office in these states.

Percentages and mean item score (M.I.S) was used to analyze the quantitative data. With respect to the qualitative aspect, 15 interviews were used for the research. Purposive sampling, which according to Oladokun *et al.*, (2022) involves identifying and selecting individuals based on their knowledge or experience about a phenomenon under investigation, was used for the study. These cities were chosen based on the location of QS professionals and construction projects it commands in each states. 15 interviews were purposively selected for the research. The interviewed QS were recruited based on their QS experience in construction project delivery in the industry. Braun and Clarke (2019) emphasized that a study's saturation is recognized when "new data" insights from a study are no longer up-coming from the participants. This technique was applied till there was no new insight from the interviewees. Interactive sessions and questions were used to establish their interest; this resulted in their voluntary participation. In addition, in-person and remote recruitment process, such as face-to-face interviews, mobile calls, e-mails were utilized for the interview. Overall, this approach was used to ensure that QS with insightful perspectives, in different demographics in Nigeria were captured, thereby fulfilling the ethical aspect of the research.

Thematic analysis was used to analyze the qualitative data. The overall process involved in the thematic analysis followed Braun and Clarke (2019) and Isang *et al.*, (2024) six-step process: familiarization, coding, generating themes, reviewing themes, defining and naming themes, and writing up. In step 1, based on the research objectives, the author familiarized himself by reading the data thoroughly, and transcribing the audio and oral notes through repetitive listening. This was achieved by jotting the ideas of potential codes in a manual codebook. Inductive coding which create codes by allowing the data to determine the themes was used. Regarding Step 2 of the coding process, the author transcribed the responses into short phrases or sentences to capture the meaning of the interview quotes. As manual coding was employed, sticky notes were used to organize the data in a meaningful and systematic way. For step 3, codes that were created were given a relook and patterns were identified, this resulted in combining several codes into themes. In step 4, the themes were reviewed to identify differences and accurate representation of the data. In step 5, the themes were defined to aid the understanding of the data. This resulted in step 6 where the analysis of the interview data was written down and the findings reported. A summary of the coding framework is presented in Table 4.

4. RESEARCH FINDINGS

4.1 Respondents' Profile of the Questionnaire Survey

Table 1 presents the details of the surveyed respondents. As indicated in the table, the respondents were predominantly QS. The table shows that 60% of the respondents had a B.Sc degree. The result also showed that 40% of the QS were registered with Nigerian institute of quantity surveyors (NIQS), while 31% with quantity surveyors registration board of Nigeria (QSRBN), and 20% were not registered in the regulatory bodies. This result indicates that majority of the respondents were both educationally and professionally qualified to make informed inputs to this research. Moreover, the table also shows that 37% of the respondents had a work experience between 11-15 years, indicating that the respondents had enough industry experience to make knowledgeable contribution to this research. The pattern of the result also showed the status of projects executed, 35% of the QS were currently executing construction projects, 42% did not execute enough projects in the last 5years, while 28% were not handling construction projects. This is an indication that majority of the respondents were not involved in construction projects.

Table 1: Details of the surveyed respondents

Category	Classification	Frequency	(%)
Academic Qualification	PhD	5	7
	M.Sc	20	29
	B.Sc	42	60
	HND	3	4
	Total	**70**	**100**
Professional Affiliation	NIQS	28	40
	QSRBN	22	31
	Not registered	20	29
	Total	**70**	**100**

Category	Classification	Frequency	(%)
Years of Experience	1 – 5	7	10
	6 – 10	21	30
	11–15	26	37.1
	16 – 20	16	22.9
	Total	**70**	**100**
Status of construction projects executed	Currently	25	35
	Last 5 years	30	42
	None	20	28
	Total	**70**	**100**

Source: Authors' survey, 2024

In addition to the survey, interviews were also conducted to gain more insight on the environmental and socio-economic benefits, and measures for enhancing QS involvement. Table 2 presents the profile of the interviewed participants. The table reveals that 47% of the interviewees possessed a B.Sc degree. The result also shows that 46.6% of the interviewees worked in the public sector, with 53.3% in the private sector. The result also puts the average years of experience of the QS between 1-10years at 7%, between 10-20 years 14%, and between 20-30 years at 20%. The duration of the interviews was between 10-40 minutes. Seven of the interviews were verbally conducted, while the remaining was carried out through audio note. Generally, this result implies that the interviewees had adequate qualification, and enough industry experience to make useful insights that can be relied upon for the analysis.

Table 2: Profile of the interviewed participants

ID	Interviewees	Work sector	Years of experience	Interview method	Interview duration
QS 1	B.Sc	Private	15	Audio	30
QS 2	B.Sc	Private	15	Verbal	20
QS 3	B.Sc	Public	20	Verbal	40
QS 4	B.Sc	Public	9	Audio	15
QS 5	B.Sc	Public	10	Audio	10
QS 6	M.Sc	Private	25	Verbal	35
QS 7	PhD	Private	15	Verbal	22
QS 8	M.Sc	Public	10	Verbal	15
QS 9	M.Sc	Public	13	Verbal	20
QS 10	PhD	Public	18	Verbal	30
QS 11	B.Sc	Public	12	Audio	16
QS 12	B.Sc	Private	20	Audio	25
QS 13	M.Sc	Private	15	Audio	40
QS 14	M.Sc	Private	20	Audio	35
QS 15	PhD	Private	22	Audio	30

Source: Authors' survey, 2024

4.2 Issues Hindering the Involvement of QS in Construction Projects

Table 3 presents responses on the issues hindering QS involvement in construction projects in Nigeria. The most challenging issue is poor marketing of the profession ranked first with a mean item score of 6.43. Similarly, political connections ranked second with mean score of 5.71. Lack of public awareness on QS roles was ranked third with mean score of 5.35. Government policies is ranked fourth with mean score of 5.00, while corrupt practices by parties involved and conservative attitude are both ranked 5th with mean score of 4.29. Furthermore, ranked 6th with M.I.S of 4.64, unethical professional practices ranked 7th with M.I.S of 3.93, usurpation from sister professions ranked 8th with M.I.S of 3.57, inter-professional rivalries ranked 9th with M.I.S of 3.21, professional incompetence of some QS ranked 10th with M.I.S of 2.50, while lack of adequate education and dearth of QS lecturers both ranked 11th with M.I.S of 2.14.

Table 3: Issues hindering QS involvement in construction projects in Nigeria

Issues hindering QS involvement	Freq.	M.I.S	Rank
Lack of public awareness on QS roles	15	5.35	3rd
Corrupt practices by parties involved	12	4.29	5th
Infiltration of quacks	13	4.64	6th
Government policies	14	5.00	4th
Inter-professional rivalries	9	3.21	9th

Issues hindering QS involvement	Freq.	M.I.S	Rank
Lack of adequate education	6	2.14	11th
Poor marketing of the profession	18	6.43	1st
Political connections	16	5.71	2nd
Conservative attitude	13	4.64	5th
Dearth of QS lecturers	6	2.14	11th
Professional incompetence of some QS	7	2.50	10th
Usurpation from sister professions	10	3.57	8th
Unethical professional practices	11	3.93	7th

Source: Authors' survey, 2024

4.3 Thematic Analysis Interviews

This section contains a summary of the results from the thematic analysis. A summary of how the codes evolved into themes, and the interview quotes are presented in Table 4.

Table 4: Summary of the coding framework

Codes	Themes	Interview Quotes	Freq.
Cost control and management Budget optimization Cost benefits Dispute settlement Financial risk minimization Economic growth Transparency and accountability	Socio-Economic and Financial benefits	*"Involvement of QS reduces cost, boosts cost management."* *"QS involvement boosts cost-benefit analysis for public infrastructure undertaking."* *"Qs involvement enhances collaboration with other construction team on cost saving options without compromising value."* *"Involvement of QS helps in optimizing project budgets and minimizing financial risk for clients."* *"Involving QS in construction projects ensures dispute settlement."* *"Qs involvement stimulates economic growth."* *"Qs involvement ensures transparency and accountability during construction process."*	9
Waste management Sustainable practices Environmental risk mitigation circular economy	Environmental benefits	*"QS involvement discourages wastage of materials on site through proper estimation."* *"Involvement of QS ensures the use of local or alternative materials, and efficient technologies with lower environmental cost over a project life cycle."* *"Involvement of QS helps in developing cost strategies in mitigating environmental risk."* *"QS involvement helps to encourage a circular economy."*	8
Enforce regulations Government policies Government involvement	Government policy and regulations	*"Regulations should be enforced to control QS practice."* *"Government policies should mandate the establishment of QS unit/department on every agency."* *"Government should make strong policies for the compulsory involvement of QS in all construction program or projects."*	7
Seminar Workshops Proficiency	Professional training for QS proficiency	*"Organizing seminars and workshops on grey areas of practice for QS proficiency."*	5
Research Innovations Technology	Research and technological innovations	*"Research and innovations in technology should be encouraged as this will pave ways for employment opportunities in both the public and private sectors."*	3

Source: Authors' survey, 2024

4.3.1 Sustainable Benefits of QS Involvement in Construction Projects

The interviewees were asked of their perception on the benefits of involving QS in construction projects in Nigeria. As shown in Table 4, their response was thematically deduced into socio-economic and financial benefits, and environmental benefits.

4.3.2 Measures for Enhancing QS Involvement in Construction Projects

This section sought the opinions of the interviewees on the measures that can be used to enhance QS involvement in construction project in Nigeria. As presented in Table 4, three themes emerged: Government policy and regulations, professional training for QS proficiency, and research and technological innovation measures. Using exemplar notes were appropriate, the following sections discusses these findings.

5. DISCUSSION OF RESULTS

Findings on the issues hindering QS involvement in construction projects identified poor marketing of the profession as the most serious. This issue is often caused by lack of public knowledge about QS profession and its services. As a result, QS appears to be the least valued, respected and recognized in the industry. Hence, their exclusion from construction projects out of ignorance. The result agrees with Ndanusa (2004) that, QS more than any other profession among the built environment profession, is facing numerous challenges as a result of poor marketing of QS profession. Therefore, the NIQS should enlighten the Nigerian built environment on the duties of the QS through mass media, online platforms and public forums. Similarly, political connection was also found as the second most serious issue hindering QS involvement. This occurs in the form of corrupt practices in awarding contracts, using public office for personal benefits, favouritism, and bribery to gain projects. The findings agree with Ogunsina *et al*., (2018) that corruption is widespread in Nigeria. This situation leads to poor practitioners' selection, affects the sustainable development of construction projects, and undermines QS involvement in projects in Nigeria.

The result also revealed that lack of public awareness on QS roles is the third most serious issue hindering QS involvement. The QS are saddled with the responsibility of ensuring that construction projects resources are efficiently utilized to give the clients best value for money. However, this role appears to be unknown to stakeholders, clients and the public in the built environment. This finding agrees with Ahmad *et al.,* (2022) that most of the clients are not aware of the services offered by QS due to misconception about QS role and name. This calls for more conscious efforts by professionals to create awareness to the Nigerian populace on the roles and need for QS on their projects. This can be achieved through TV awareness programs and public forum anchored by the government, private organizations, and the NIQS. Government policy was also found as the fourth most serious issue hindering QS involvement. Unfavourable government policies such as unnecessary taxation, non-involvement of QS as opposed to other professionals, are problematic in the NCI. Therefore, the strategic aim of government policy towards the NCI should be to establish an enabling environment where construction, development and growth are realized. This can be achieved by implementing regulations, contract procurements policy, and direct financial support that takes the QS in the industry into consideration. This will promote stability, foster economic growth and create sustainable employment for QS involvement in construction projects.

Corrupt practices by parties' involved and conservative attitude are tied as the fifth most serious issue hindering QS involvement. Corrupt practices in both public and private sector by parties in the construction process are on the increase. This finding is in agreement with Oladiran (2013) corrupt practices by parties involved influences QS' involvement. Lack of integrity and adherence to building code of ethics are common place in Nigeria. Given that QS are responsible for protecting the financial and contractual interest of their clients, they should display honesty and professionalism in dealing with corrupt governments bureaucrats or clients. Conservative attitude is another aspect that hinders QS involvement in construction projects. This happens due to the 'resistant to embrace change' mentality of some QS. This explains the rather restrictive role of QS with the production of bills of quantities. This has limited the QS willingness to try other innovations and invest in necessary technologies. It is therefore suggested that a paradigm shift is needed from conservative practices in the public sector/building projects towards diversification in other sectors.

Results from the thematic analysis on the benefits of QS involvement in construction projects showed that socio-economic/financial benefits and environmental benefits are attached to QS involvement. Among the socio-economic and financial benefits, the findings revealed that QS involvement can bring about cost control and management benefits in construction projects. As disclosed by QS 1, 2, 3 and 4, *"Qs involvement enhances collaboration with other construction team on cost saving options without compromising value."* Thus, cost management capability of the QS is catalytic to economic development in Nigeria. This finding agrees with Wanigasinghe *et al.,* (2024) that, QS are construction economists who plan cost-effectiveness throughout the pre-construction to post-construction stages. Minimization of financial risk was found to be another socio-economic benefit of QS involvement. As highlighted by QS 5, *"Qs involvement helps in optimizing project budgets and minimizing financial risk for clients."* QS calculates and allocates contingency budgets to cover unforeseen risk. These

budgets act as a financial cushion to address unexpected events without affecting the overall budget. This underscores the usefulness of QS in monitoring and evaluating the effectiveness of risk mitigation plans throughout the entire project lifecycle.

Furthermore, the study also found that QS involvement can ensure dispute settlement. In the context of construction disputes, QS provides impartial analysis and expert opinions on a range of issues such as, cost estimation, budget management, contract compliance/administration, evaluation of variations and their financial impact. This they achieve by dissecting disputes, identifying the root causes, proposing fair and viable solutions, and advising the clients on their course of action. Hence, their proactive negotiation and mediation approach makes them an asset to conflict resolution in the NCI. The study also revealed that QS involvement in construction project can stimulate economic growth in Nigeria. The poor economic situation currently experienced in Nigeria has a tremendous impact in the NCI. Therefore, QS have a role in integrating cost control measures, and sustainability during design and construction process to deliver successful infrastructural projects that will stimulate economic growth in the NCI. Moreover, the study revealed that transparency and accountability is another socio-economic benefit of QS involvement. As disclosed by QS 1, 3, 7, 8 and 9, **"***Qs involvement ensures transparency and accountability during construction process."* This implies that the involvement of QS in construction projects can lead to improved project management practices, strengthened regulatory oversight, transparency and accountability in infrastructure development.

Furthermore, regarding the environmental benefits of QS involvement, the analysis showed that QS involvement can bring about material waste management. As disclosed by 4, 11 and 12, *"QS involvement ensures that necessary advice on construction wastage and management is followed through during construction."* Key roles of QS are reuse of waste materials, proper material storage, material inventory accounting, and supply management to achieve value for money. The study also found that QS involvement can ensure the use of sustainable materials. As highlighted by QS 10, 13 and 14, *"QS involvement ensures the use of local or alternative materials, and efficient technologies with lower environmental cost over a project life cycle."* Indeed, QS plays a vital role in ensuring efficient use of resources and promoting sustainable practices. This they display by understanding eco-friendly building materials, carbon reduction techniques, and renewable energy sources when selecting suppliers and contractors. This underscores the importance of QS position in assisting in achieving sustainable goals over a projects life cycle.

Mitigation of environmental risk was found as another environmental benefit of QS involvement. As mentioned by QS 4 and 15, *"Qs involvement helps in developing cost strategies in mitigating environmental risk."* QS assesses and reduces risk in sustainable construction projects. Their contribution includes, understanding the social, environmental and economic factors affecting project sustainability goals and uncovering vulnerabilities. These could range from climatic conditions that could lead to project delays. This can help in managing the environmental impact in construction projects. The study also revealed that QS involvement can encourage a circular economy. The concept of circular economy aims to alter current consumption and output trends that are putting enormous strain to the built environment. The benefit of the QS here is to employ cost control/planning, feasibility studies, measurement/quantification, risk management, value engineering and innovations and technologies in the construction process. Thus the involvement of QS is important in playing a key role in the Nigerian construction industry (NCI) to uplift the circular economy approach in Nigeria. Figure 1 presents a flowchart of the sustainable benefits of QS involvement in construction projects.

Result from the thematic analysis on the measures for enhancing full involvement of QS in construction project delivery revealed that Government policy and regulations is the top measure to enhance QS involvement in construction projects. As disclosed by QS 1, 2, 4, 5, 7, 10 and 13, *"Government should make strong policies for the compulsory involvement of QS in all construction program or projects."* This infers that Government involvement is needed. Therefore, there is a need for the Government to formulate a policy and enforce regulations that will control QS involvement in construction projects. Such regulations should mandate that construction projects without QS involvement must not be honored for payment. In addition, the Government should establish QS unit/department on every agency. Altogether, this will endure the compulsory use of QS in construction projects. Findings from the interview also revealed that specialized training for QS proficiency is another measure that can enhance QS involvement in construction projects. As highlighted by QS 5, 9, 11, 12 and 15, this involves "*organizing seminars and workshops on grey areas of practice for QS proficiency".* This infers that more training is needed for QS proficiency to enhance QS involvement in the industry. This lends credence to Wanigasinghe *et al.,* (2024) who reiterated a pressing need to enhance QS competencies and embrace digitalization to navigate future uncertainties effectively. As the study shows, one of such necessity is the involvement of QS in construction projects. Hence, it is suggested that seminars, workshops, and refresher courses should be organized by the government, private organizations, and the NIQS. This will increase QS proficiency in being involved in construction projects. The study also revealed that

research and technological innovations is another measure that can enhance QS involvement in construction projects. As mentioned by QS 3, 7, and 15, *"Research and innovations in technology should be encouraged as this will pave ways for employment opportunities in both the public and private sectors."* This stance is as a result of the impact of technology on the QS profession. As an example, many software packages are now available for performing the services being rendered by QS. Research can be made towards the application of such modern technology to enhance the chances of QS involvement in construction projects. The agrees with Oladiran (2013) and Wanigasinghe *et al.*, (2024) that aligning QS practices with emerging industry trends and technological advancements can boost QS' involvement in construction projects' execution Nigeria. Figure 2 presents a flowchart of the measures for enhancing QS involvement in construction projects.

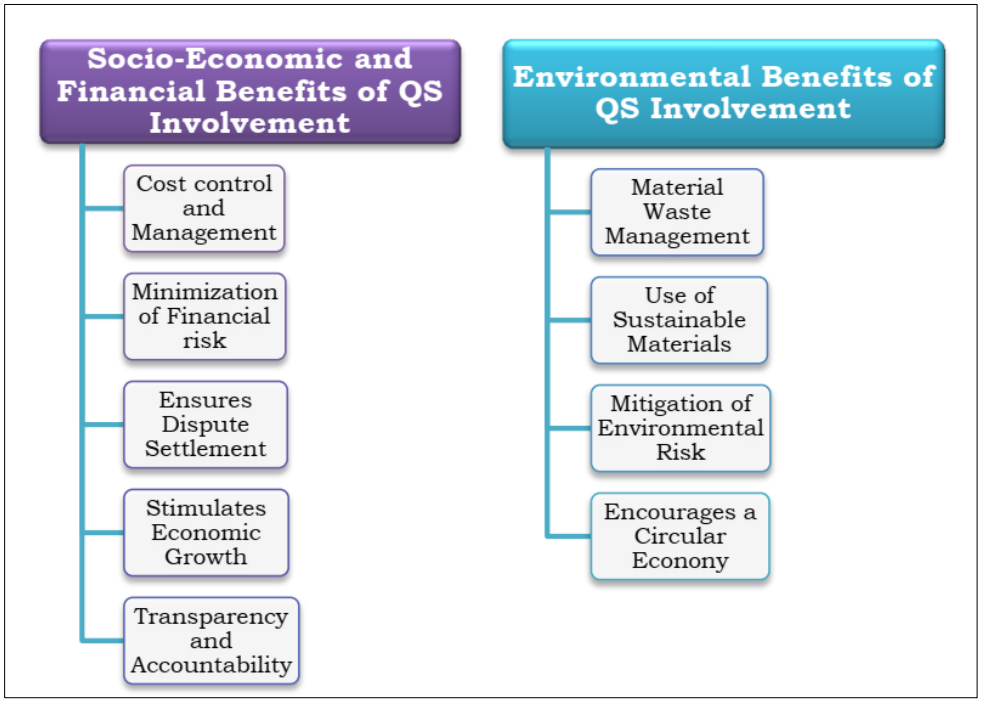

Figure 1: Hierarchical representation of the sustainable benefits of QS involvement in construction projects in Nigeria
Source: Authors' survey, 2024

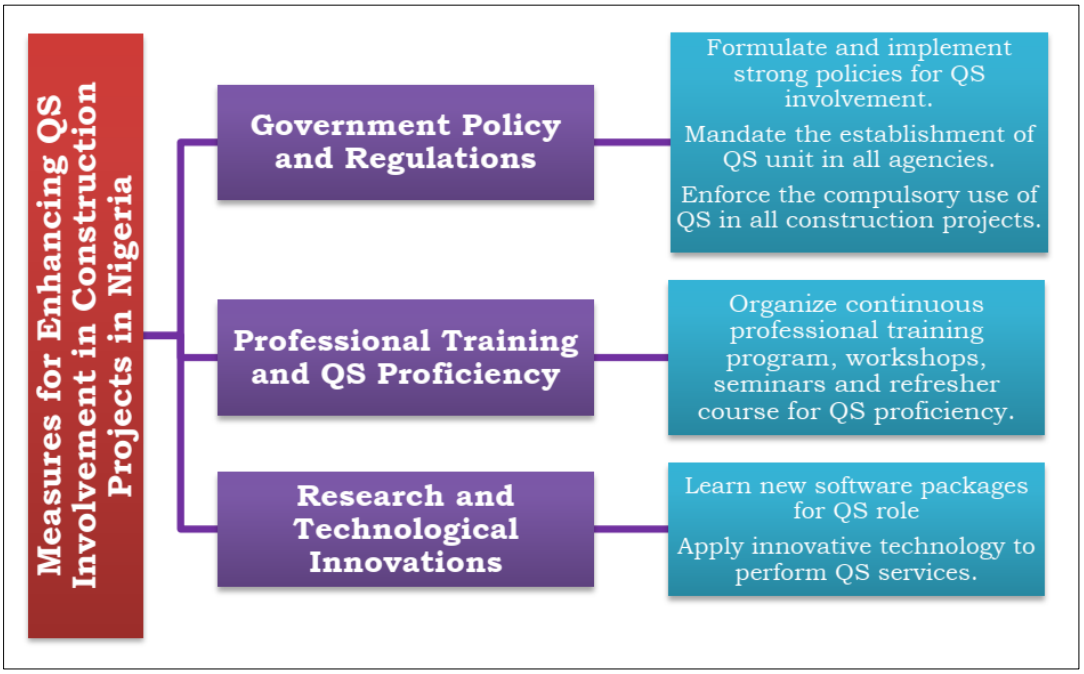

Figure 2: Hierarchical representation of the measures for enhancing QS involvement in construction projects in Nigeria
Source: Authors' survey, 2024

6. CONCLUSION AND RECOMMENDATION

The QS profession plays an undeniable role in the life cycle of all construction projects. However, despite their cost-benefit contributions, the non-involvement of QS in construction projects has raised nationwide concerns in the industry. Therefore, in identifying the issues hindering QS involvement in construction projects in Nigeria, the study found that poor marketing of the profession, political connections, and lack of public awareness on QS roles, Government policies, and corrupt practices by parties involved, together with conservative attitude are the major challenges of QS involvement. The study also sheds light on the sustainable benefits of involving QS in construction projects. This, the study highlights by showing that socio-economically and financially, QS involvement can bring about cost control and management, minimization of financial risk, dispute settlement, stimulation of economic growth and, transparency and accountability are the major socio-economic benefits of QS involvement. In addition, environmentally, QS involvement can result in material waste management, use of sustainable materials, mitigation of environmental risk, and encourages a circular economy in the NCI. More importantly, the study thematically deduced that Government policy and regulations, professional training for QS proficiency, and research and technological innovations are key measures needed to enhance QS involvement.

Based on the foregoing conclusion, the paper develops the following recommendations to achieve full involvement of QS in construction projects in Nigeria:

1. The Government should formulate strong contract administration/procurements policy, implement sustainable building regulations, and provide direct support that takes the QS profession into consideration. To achieve this, not only should the input of professional QS be sought on construction-related policies, but such regulations should enforce that only construction program or projects initiated with QS involvement should be honoured for payment. Also, the mandatory establishment of QS unit/department in every agency or companies at federal, state and local government level is recommended to ensure the compulsory use of QS in construction projects.
2. Gaps in grey areas of QS professional practice should to be filled. This should be achieved through well-organized continuous professional training program, workshops, seminars and refresher course. This can be achieved through more collaborative efforts between Governments, private organizations, NIQS and practicing QS.
3. Research and innovations in technology are also needed to pave way for employment opportunities in Nigeria. For this to be realized, effort is required by QS in upgrading their conventional roles towards learning new software packages and applying modern construction technology to efficiently perform QS services. Doing so can upgrade QS' competency and boost their chances of involvement in construction projects in Nigeria.
4. Public awareness about QS profession and its services is needed to enlighten the Nigerian society on the role of QS. Thus, the NIQS should re-strategize ways of marketing the QS profession. This can be done through awareness program on mass media, online platforms and public forums. In this way, the masses will gain widespread orientation about the QS profession, thereby elevating the value and recognition of QS in the NCI.
5. Awarding of contracts through merits, not connections should be encouraged in the construction process. It is therefore recommended that ethical standards should be adhered by government agencies and clients saddled with contract administration in Nigeria. In addition, QS should display professionalism and integrity to building code of conduct. This will assist in dealing with issues of corrupt practices and political connections in the industry.
6. Considering the socio-economic/financial benefits and environmental benefits of QS involvements in construction projects, it is recommended that public and private sector clients in Nigeria should engage the services of QS. This will help to promote stability, stimulate economic growth and create sustainable employment for QS involvement in Nigeria.

7. Policy Relevance and Implications

The study's contribution lies in its development of measures that will enhance full QS involvement in construction projects in Nigeria. For industry and construction management practice, the study's insight on the underlying issues hindering QS involvement in construction projects will enable QS practitioners to anticipate challenges limiting their involvement and work towards overcoming them. With respect to public/private sector stakeholders and clients in Nigeria, the study will assist them in discovering varied socio-economic/financial benefits and environmental benefits they stand to gain by involving QS in construction projects. For the Government, the measures and action recommended in this paper will guide them towards enforcing policies and regulations that will mandate QS involvement in construction projects in Nigeria. Despite these contributions, the paper has few limitations. The analysis is solely based on the perspectives of QS, this limits the inputs of other practitioners. In addition, the MMR study was conducted with QS in selected states in Nigeria. Interestingly, the limitations presents opportunities for future research to further explore these

gaps to better enhance QS involvement for a sustainable built environment across Nigeria.

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