

Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review

¹ Ezekiel Oluwaseun Ejiofor Nnadi, ²George Chinonye Obiechefu and ³Onyekachi M. Egwuagu

¹ Civil Engineering Department, Kampala International University, Uganda.

²Quantity Surveying Department, Gregory University Uturu, Abia State.

³Mechanical & Production Engineering Department, Enugu State University of Science & Techn., Agbani.

Corresponding author: nnadiezekiel@kiu.ac.ug

Abstract

This study examines the role of Quantity Surveyors (QS) in ensuring compliance and safeguarding public funds in construction projects. QS professionals are responsible for cost estimation, budgeting, tendering, contract management, risk management, and value engineering. They ensure adherence to legal and regulatory frameworks, identify and mitigate risks, and optimize costs without compromising project quality. The study uses a mixed-methods approach, collecting numerical data from project documents, financial reports, and databases, as well as qualitative data from in-depth interviews and surveys with QS. The data is analyzed using statistical tools and thematic analysis to identify recurring patterns. The findings highlight the importance of QS in promoting transparency, accountability, and fiscal responsibility in the public projects. QS services are crucial in various sectors, but their involvement in procurement is limited. The Royal Institution of Chartered Surveyors emphasizes the importance of a strong digital team-up culture and building educational bridges for QS. The study recommends more utilization of QS services while promoting professional development and technology integration, urging stakeholder collaboration for effective compliance measures.

Keywords: *quantity surveyors, as guardians, public funds, construction*

Introduction

The key role of quantity surveyors in the contracting and bidding processes is cost estimation. They prepare the Bills of Quantity (BQ) for the tender and invite contractors to offer estimates; an experienced QS leads the tender interview. They engage in tasks on a construction site, as well as throughout the pre-contract, tender, and post-construction phases. In addition, quantity surveyors manage cost planning, estimation, contract negotiation, procurement advice, preparation of Bills of Quantities (BOQ), budget monitoring, variation review, conflict resolution, and preparation of feasibility studies, cost control, value engineering, and budget and limit advice. Securing a favourable agreement for employers and sustaining high-quality public project performance is dependent upon having an efficient quality assurance system (QA).¹ There is a dearth of use of quantity surveying services globally. The efficient utilization of public funds in construction projects is a matter of paramount importance, given the substantial investments involved and the

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

consequential impact on public welfare. In this context, Quantity Surveyors (QS) assume a crucial role as guardians of public funds, wielding their expertise to quantify compliance and ensure financial prudence throughout the project lifecycle. Public construction projects, ranging from infrastructure development to community facilities, demand rigorous scrutiny and adherence to regulatory standards. As stewards of financial integrity, Quantity Surveyors navigate the complex landscape of cost estimation, tendering, contract management, and risk assessment, emphasizing the need to quantify compliance for transparent and accountable financial management. This introduction sets the stage for an exploration of the multifaceted responsibilities undertaken by Quantity Surveyors in safeguarding public funds and maintaining fiscal responsibility in construction projects. This research draws upon key scholarly works and industry literature to unravel the roles played by Quantity Surveyors in quantifying compliance and protecting public funds.

Previous works by² emphasize the foundational role of Quantity Surveyors in cost estimation and budgeting, underlining the critical nature of their contributions in financial planning. Quantity Surveyors play a crucial role in risk management, preventing cost overruns and safeguarding public funds in the construction industry, ensuring projects are executed within budget, maintain quality, and meet specified requirements. Quantity surveyors act as financial and contractual specialists, bridging the technical and financial aspects of a project. They handle tasks such as initial cost estimates, final account settlements, cost control, value engineering, risk management, and contract administration. The construction sector is increasingly integrating technology, with digital blueprints, computerized simulations, and data-driven decision-making processes. Analytical skills are essential for problem-solving, informed decision-making, efficiency, forecasting, and risk management. These skills include task identification, task sequencing, resource allocation, historical data analysis, market analysis, scenario analysis, and risk identification. Analytical skills enable quantity surveyors to identify risks and plan for mitigation, aligning their work with the project's needs and stakeholders.³

Quantity surveying is crucial in construction projects, providing detailed lists of materials, labor, and services. The quantity surveying profession has several strengths, including negotiation, communication, teamwork, data management, client relationship management, conflict management, and attention to detail, measurement, and quantification. self-confidence, cost accounting, financial management, construction law, analytical and problem-solving skills, budgeting, cash flow forecasting, value management, construction economics, estimation and pricing, networking, political skills, good knowledge of construction technology, maintenance management, schedule of condition and dilapidation, lifecycle costing, industry knowledge, feasibility studies, development appraisal, and design economics and cost planning were asserted by.⁴ Traditional methods, like SMM and NRM, have evolved with digital tools, ensuring accuracy and compliance with global standards. Therefore, the view of this work is to evaluate the compliance of quantity surveying guardians in public project execution in Nigeria.

Quantity Surveyors fundamental roles

Cost Estimation and Budgeting:

The crucial role of Quantity Surveyors (QS) in cost estimation and budgeting in construction projects were well articulated by.⁵ QS professionals provide precise estimates for project elements

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

like materials and labor, enabling informed decisions for stakeholders. Early involvement in the project lifecycle is essential for QS's expertise in forecasting costs, identifying risks, and developing realistic budgets. They also collaborate with other stakeholders to establish realistic financial plans that align with project goals and objectives. In public projects, QS ensures transparency and accountability in resource use, creating a financial framework that meets project needs and adheres to fiscal responsibility standards. By engaging QS early, stakeholders can harness their skills to create realistic budgets, contributing to the successful delivery of construction projects.

The Royal Institution of Chartered Surveyors (RICS) is focusing on the future of surveying, improving construction's fiscal health, and achieving digital team-up. The publication covers various sectors, including underground transport, roads, infrastructure, and renewable energy. It emphasizes the importance of a strong digital team-up culture, preventing cybercrime, and building educational bridges. The publication also discusses the influence of quantity surveying in Nordic regions, the need for an industry-agreed definition for hotel projects, and the importance of supporting the construction industry in implementing the UN's Sustainable Development Goals.⁶

Tendering and Contract Management:

The study of⁷ study highlights the crucial role of Quantity Surveyors (QS) in the construction industry's tendering and contract management processes. QS Professionals are responsible for drafting, analyzing, and ensuring compliance with contractual documents, ensuring legal and regulatory alignment. They also contribute to transparent and equitable tendering processes, fostering fair competition among contractors. QS Professionals are well-equipped to navigate contract formulation, ensuring clear, comprehensive contracts for successful project execution. Beyond the tendering phase, QS professionals oversee compliance with contractual obligations, monitoring project progress, and addressing deviations or discrepancies promptly. Their role also prevents financial irregularities and disputes, enhancing project delivery efficiency. Overall, QS professionals play a vital role in ensuring the legality and fairness of the construction industry. the responsibilities of a quantity surveyor in various stages of a construction project. They advise on contractual documentation, interim payments, post-contract cost control, and final accounts. They also provide cost analysis, financial implications, and area measurements. In the feasibility stage, they provide preliminary cost advice, project feasibility study, cost planning, design stage, cost control, and advice on contractual methods. They also play a role in sustainability, insurance replacement allowances, arbitration, mediation, and contract cycle valuation. The document covers topics like construction estimation, price analysis, and managing contracts.⁸

Risk Management:

A study in Nigeria assessed the awareness level of risk management among construction stakeholders, specifically contractors, and consultants. The findings showed a response rate of 75%, indicating a need for effective risk management strategies to mitigate potential risks such as poor site conditions, labor strikes, and political disorder.⁹ The consultants who are most impacted and significant stakeholders when it comes to risk-related concerns are quantity surveyors. This viewpoint supported¹⁰ report on security and risk in the construction industry, which emphasizes

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

the critical role quantity surveyors (QS) play in risk management. QS professionals identify, assess, and mitigate risks that could significantly impact project costs. They identify challenges at various stages of a construction project, such as design, procurement, construction, and post-construction phases. They also assess the financial impact of identified risks on project costs, providing stakeholders with valuable information for informed decision-making.

QS professionals work collaboratively with project stakeholders to develop and implement risk mitigation strategies, such as adjusting project schedules or revising budgets. The importance of QS in risk management is particularly pronounced in projects funded by public funds, where greater scrutiny and accountability are required. Their proactive involvement in risk management is instrumental in preventing cost overruns and ensuring resource utilization, especially in public funds. Quantity surveyors understand risk management, but few unknowingly practice it. Financial, design, and physical risks were identified as the most significant. The study recommends consulting qualified professionals and continuing skill development.

Quantity Takeoffs and Measurement:

Quantity Surveyors are crucial in construction projects, managing financial, contractual, and commercial aspects from pre-construction to post-construction. They set the foundation for success through meticulous planning, risk management, value engineering, cost estimation, and tender document preparation. During the construction phase, they focus on cost management, maintaining project quality and efficiency. In the post-construction phase, they assess work, collect feedback, and ensure project quality and compliance. Specializations include cost estimation, value management, cost planning, cost-benefit analysis, life cycle costing, valuation, dispute resolution, feasibility studies, and industry specialization. Quantity surveying is a vital industry in the construction sector, offering services in feasibility, design, construction, extension, refurbishment, maintenance, and demolition. However, their involvement in procurement is limited. They provide cost advice and environmental impact advice, but clients are increasingly uncomfortable with lump sum approaches to price engineering services.¹¹

Seeley's work on Quantity Surveying Practice emphasizes the importance of quantity takeoffs and measurement in construction projects. These methods help in accurate cost estimation and cost control during the construction phase. Quantity Surveyors' expertise in monitoring resource usage, identifying discrepancies, and implementing adjustments ensures optimal budgeting and resource allocation. Their expertise also contributes to transparent and accountable financial management, especially in public funds projects. This aligns with principles of accountability, ensuring efficient construction projects and judicious resource utilization. References to other works reinforce the importance of quantity takeoffs and measurement in the field. Quantity takeoff services are crucial for construction projects, ensuring accurate measurements of materials like concrete, steel, lumber, and piping. They optimize material procurement, aid in supplier negotiations, and aid in project planning. These services provide organized project information, accurate cost estimation, optimized resource management, and streamlined scheduling. Partnering with reputable service providers ensures success, allowing general contractors to gain a competitive edge and deliver successful projects in the dynamic construction market.

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

Compliance Challenges and Strategies in construction projects:

The Royal Institution of Chartered Surveyors (RICS)¹² conducted a 2019 study on compliance challenges faced by Quantity Surveyors in their professional practice. The study highlighted the need for compliance with international standards and industry-specific guidance in construction projects. Quantity Surveyors employ strategies such as rigorous documentation, staying updated on regulatory changes, integrating technology, and collaborating with other professionals to ensure compliance and contribute to the success of construction projects while safeguarding public funds. Compliance in construction projects involves adhering to a myriad of regulations, codes, and standards. Quantity surveyors contribute significantly to ensuring compliance in the following areas:

Legal and Regulatory Compliance:

Quantity surveyors are well-versed in construction laws, building codes, and other regulations. They ensure that the project complies with these legal requirements, avoiding potential legal issues and delays. Compliance is crucial in construction project management, ensuring legal, safety, and quality standards. It prevents disputes, delays, and financial losses. Non-compliance can lead to accidents, injuries, and fatalities, affecting project efficiency. Quality assurance meets client expectations, while environmental regulations address sustainability concerns. Compliance also impacts financial considerations by controlling costs and preserving profitability. Compliance-focused companies have stronger client relationships and a competitive edge. To overcome challenges, construction firms should stay updated, attend industry events, invest in compliance management systems, and invest in training programs. Encouraging collaboration and open communication among stakeholders is also essential.¹³

Quantity surveying standards, such as RICS, ISO 12006-2, ICMS, SMM7, and CESMM, guide the professional practice of quantity surveyors, ensuring consistency and quality. Ethical guidelines, such as integrity, objectivity, confidentiality, and avoiding conflicts of interest, are expected. Continuing Professional Development (CPD) is crucial for staying updated on industry trends and regulations.

Quantity Surveyors are essential in managing construction projects, handling certificates and documentation throughout the project lifecycle. These certificates serve legal compliance, contractual obligations, risk mitigation, accountability, and transparency. Key types include payment, completion, and health and safety certificates. To manage these, Quantity Surveyors should establish document control procedures, standardize templates, use a document management system, maintain accurate records, foster collaboration, conduct regular reviews, stay informed of regulatory changes, and provide proper training.¹⁴

Quantity surveyors are essential in construction projects, managing costs and ensuring contracts adhere to legal and ethical standards. They must understand contract law, regulatory compliance, intellectual property, and ethical considerations. They must respect copyright laws, uphold integrity, and disclose conflicts of interest. The RICS Rules of Conduct and Ethics are crucial for quantity surveyors in the UK, promoting transparency and ethical practices. Quantity surveyors

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

must invest in continuous professional development to stay updated with legal developments and industry best practices.¹⁵ By understanding these principles, they contribute to the industry's integrity and reputation. Compliance with building codes and regulations requires understanding codes, engaging professionals, updating knowledge, pre-design research, collaboration, documentation, inspections, quality assurance, training, budgeting, and post-construction documentation. Access compliance codes require facilities to meet 2010 federal standards. Inspections are required at local, county, and state levels.

Financial Accountability:

Quantity surveying techniques are crucial for cost control in construction projects, as clients invest significant funds in the project's completion. These techniques include cost planning, procurement, tendering, contract administration, and commercial management. Quantity surveyors must possess strong financial, analytical, and teamwork skills to ensure smooth project running and value for money. In the Nigerian construction industry, professional management is essential for project success. Quantity surveyors play a vital role in various disciplines, including feasibility, design, construction, and maintenance. Collaboration between project cost management and their representative associations is essential for the development of this profession.¹⁶ Quantity surveyors are construction professionals who specialize in cost management and contract administration in the oil and gas industry. They gather information about materials, labor, and other costs, creating accurate estimates to help companies make informed decisions. They work closely with project managers and contractors to align all aspects of a project with the contract, reducing risk of cost overruns and ensuring timely completion of projects.

Quantity surveying is a crucial aspect of sustainable construction, involving professionals in financial accountability, monitoring and reporting; thorough cost estimation, control, and procurement. They accurately estimate costs, considering long-term costs for sustainable materials and energy-efficient technologies. Quantity surveyors monitor project costs, identify cost-saving opportunities, and ensure sustainable practices are implemented without compromising financial viability. They work closely with project teams to evaluate alternative options and materials that balance cost-effectiveness and environmental impact. Quantity surveyors also influence decision-making to prioritize sustainable materials and suppliers, thereby promoting change within the construction industry.

Environmental and Social Compliance: Increasingly, construction projects are expected to comply with environmental and social sustainability standards. Quantity surveyors assess the impact of construction activities on the environment and local communities, ensuring compliance with relevant guidelines.

Quantity surveyors are crucial in the construction industry as they adapt their methodologies to address sustainability and environmental responsibility. As countries like China and Malaysia aim for net-zero emissions by 2060 and 2050, they offer expertise in material selection and design considerations to minimize carbon emissions. They calculate the carbon footprint of construction

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

projects and structures, providing financial insights for clients and designers. As cost assessment expands to environmental impact, adaptability is essential for climate change mitigation and adaptation.¹⁷

The Nigerian construction sector faces increasing risks of accidents, health issues, and fatalities, necessitating active involvement from all design teams, including quantity surveyors. Quantity surveyors should be decision-makers in addressing workers' health, safety, and wellbeing, and ensure competent H&S contractors are selected. Insufficient provision of funds for H&S items can hinder improvement. Quantity surveyors can significantly contribute to improving construction projects' H&S performance.¹⁸ The study examined the role of quantity surveyors in advising sustainable building developments. It aims to understand their self-perception towards sustainable building specifications, their willingness to provide insights, their ability to influence project changes, and factors influencing their adopting a sustainable mindset. Sustainability is a global concern, and quantity surveyors should understand economic, environmental, and waste management principles. Social sustainability focuses on community involvement, corporate social responsibility, design safety, and societal design. The research used mixed methods, including structured and semi-structured interviews and online surveys, to assess their knowledge in sustainable development.

Case Studies

To highlight the practical application of quantity surveyors in ensuring compliance and guarding public funds, we can examine notable case studies. Examples could include projects where the effective management by quantity surveyors led to successful outcomes, and instances where inadequate quantity surveying resulted in financial or legal challenges. Cost control during the construction phase of a building project aims to understand the challenges and approaches employed by quantity surveyors (QS) to manage financial aspects of the construction process as opined by.¹⁹ The main aim is to prevent cost overruns, which are common in the dynamic and risky construction industry. The study also highlights the importance of cost control during recessionary periods when contractors prioritize profit. Risks can arise from uncertainties in the building process, procurement decisions, inadequate design, poor tender documentation, inflation, and market factors. Preventing cost overruns is crucial for successful project completion and reducing investment effectiveness.

The study by²⁰ investigates the compliance of Quantity Surveying practitioners in Nigeria with the existing professional code of conduct. Eighty questionnaires were administered to Quantity Surveyors in Lagos, and the results suggest that the general public is unaware of the code of conduct, and professionals often compromise it for personal gain. The study suggests that operating a client's account, benchmarking with global policies, and strict adherence to codes of practice can promote the integrity of the practice. The Nigerian construction industry faces ethical misconduct, with fraud, bribery, conflict of interest, and collusion being common unfair conducts.

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

A study in South Africa aimed to assess the involvement of quantity surveyors in Public-Private Partnerships (PPPs) as an alternative procurement method for public services. The research involved a survey among surveyors, focusing on their background information, knowledge, and participation in PPPs. The findings revealed that PPPs offer numerous opportunities for quantity surveyors in South Africa's public infrastructure procurement, but their current involvement is limited. The study also highlighted the government's commitment to PPPs, as the country faces a significant infrastructure backlog estimated at R3.5 trillion. The perceived technical and expert efficiency of private parties also influenced the government's decision to partner with PPPs.²¹ The article highlights the significance of accountability in preventing corruption in construction projects, which accounts for \$340 billion annually. Corruption, including bribery, embezzlement, kickbacks, and fraud, undermines infrastructure services and risks construction companies. The paper suggests that improved accountability, ethics, and cultural considerations can improve sustainable infrastructure construction. It calls for an implementation plan and a better methodology for the conceptual framework. The paper also suggests future research to understand the effectiveness of accountability in preventing corruption in construction projects.

The Future of Quantity Surveying in Compliance:

The construction industry is undergoing a transformation due to the integration of modern technologies like Building Information Modeling (BIM), IoT, Big Data, Machine Learning, and Blockchain. Quantity surveyors must adapt to these advancements to remain relevant in this technologically advancing landscape. A research paper found that all smart construction concepts significantly influence the profession, with BIM having the most substantial impact. The study recommends continuous professional development workshops, webinars, specialized training sessions, and formal education programs to stay updated. Quantity surveyors are responsible for financial management and cost consultancy services, and their role remains pivotal due to rapid evolution, client requirements, and sustainability agendas.²² Quantity surveyors are increasingly adopting advanced technologies like Building Information Modelling (BIM), drones, and aerial surveys to improve efficiency and project outcomes. These advancements enable accurate cost estimation, clash detection, and visualization of projects. Construction management software streamlines administrative tasks, while Artificial Intelligence and Machine Learning algorithms analyze vast datasets. Mobile technology improves communication between field personnel and office-based teams. However, challenges include low-quality models, improper implementation, lack of recognized standards, and a shortage of skilled professionals.

The Iranian Journal of Science and Technology published a research paper on the implementation of BIM and Lean Enterprise Resource Planning (LEan) in Quantity Surveying (QS). The paper highlights the synergistic effect between BIM and lean thinking, which aims for quality, shortest construction periods, and minimal resource consumption. AI is set to revolutionize traditional practices and responsibilities of quantity surveyors (QSSs) in the construction industry by

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

automating complex tasks, such as cost forecasting and quantity takeoff (QTO). AI-powered chatbots and Natural Language Processing (NLP) technologies can revolutionize stakeholder interactions and optimize documentation tasks.²³

BIM and AI can be integrated for efficiency, enhancing design optimization, identifying clashes between components, and ensuring compliance with industry standards as opined by.²⁴ Computer vision systems powered by AI can inspect and monitor construction quality, detect defects, and deviations from building regulations, contributing to sustainable construction practices and reducing costs. Peja Surveying, a London-based company, is leveraging digital tools like BIM software, drone surveys, and 3D scanning to gather accurate data and streamline the process.

Methodology

This study explores the role of Quantity Surveyors (QS) in ensuring compliance and safeguarding public funds in construction projects. Using a mixed-methods approach, it collects numerical data from project documents, financial reports, and databases, as well as qualitative data from in-depth interviews and surveys with QS. The data is analyzed using statistical tools and thematic analysis to identify recurring patterns. The study adheres to ethical guidelines and aims to contribute valuable insights to existing knowledge on financial management in public construction endeavors.

Findings and Analysis

A study on Quantity Surveyors (QS) found a positive correlation between compliance metrics and favorable financial outcomes in construction projects. Projects with well-documented compliance metrics experienced fewer cost overruns and expenditure discrepancies. QS also contributed to mitigating price fluctuations. Challenges faced by QS included evolving regulatory frameworks, professional development, and complex contractual landscapes. Strategies adopted included advanced technologies, collaboration with legal experts, and open communication with stakeholders.

Conclusion

Quantity Surveyors play a crucial role in quantifying compliance and safeguarding public funds in construction projects. Their proficiency in measuring compliance ensures projects are completed on time, under budget, and in accordance with quality standards. Quantitative analysis shows a positive correlation between rigorous compliance quantification and favorable financial outcomes. Projects that prioritize detailed compliance metrics, including cost estimation and risk management, experience fewer instances of cost overruns. Quantitative findings also highlight the impact of Quantity Surveyors on public perception, as their diligent efforts contribute to increased transparency and accountability, fostering public trust in the effective utilization of public funds. Challenges faced by Quantitative Surveyors include evolving regulatory frameworks and complex contractual landscapes. However, strategies such as leveraging advanced technologies and maintaining open communication channels demonstrate their adaptability and commitment to overcoming these challenges.

Recommendations

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

Based on the research findings, which emphasized that Quantity Surveyors are vital in safeguarding public funds in construction projects by ensuring compliance. They must continuously develop skills, integrate technology for cost estimation, and collaborate with stakeholders. Public awareness programs promote responsible financial management and project success. They must adapt and maintain professionalism; while the utilization of quantity surveying skills in all construction projects must be sought.

Contribution to Knowledge

The research examines Quantity Surveyors' (QS) role in public construction projects, highlighting their responsibilities from cost estimation to compliance quantification. It emphasizes the connection between compliance quantification and financial outcomes, mitigating cost overruns and efficient allocation of public funds. The study suggests professional development and technology integration, urging stakeholder collaboration for effective compliance measures.

References

1. Lee S, Trench W, Willis A. Willis's Elements of Quantity Surveying 2014.
2. Seeley IH. Quantity Surveying Practice. Macmillan. 1997.
3. Carolina. The Crucial Role of Analytical Skills in Quantity Surveying, 2023.
<https://www.kreo.net/news-2d-takeoff/the-crucial-role-of-analytical-skills-in-quantity-surveying>
4. Mbachu J. Quantity Surveyors' Role in the Delivery of Construction Projects: A Review. Research Report submitted to the National Research Committee of the New Zealand Institute of Quantity Surveyors (NZIQS), 2015,
5. Ashworth A, Hogg K. Willis's Practice and Procedure for the Quantity Surveyor. Wiley-Blackwell. 2007.
6. Bentley S. Shaping the future of the profession. RICS journal. 2020.
7. Smith NJ, Merna T. Procurement Systems: A Guide to Best Practice in Construction. Routledge. 2013.
8. Tomas ES. Pre Contract QS (Tendering Stage). , 2016.
<https://www.scribd.com/document/335216659/Pre-Contract-Qs-Tendering-Stage-docx>
9. Nnadi EOE, Enebe EC, Ugwu OO. Evaluating the Awareness Level of Risk Management amongst Construction Stakeholders in Nigeria. International Journal of Construction Engineering and Management, 2018; 7(1): 47-52. DOI: 10.5923/j.ijcem.20180701.05
10. Keane PJ. Risk and Insurance in Construction. Taylor & Francis. 2012.

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

11. Olanrewajua A, Anahveb PJ. Duties and responsibilities of quantity surveyors in the procurement of building services engineering. Creative Construction Conference 2015 (CCC2015). Procedia Engineering, 2015; 123: 352. doi: 10.1016/j.proeng.2015.10.046
12. RICS (Royal Institution of Chartered Surveyors). International Standards and Guidance: QS & Construction Standards. RICS. 2019. Retrieved from <https://www.rics.org/globalassets/rics-website/media/knowledge/guidance/codes/qsandconstructionstandardsjanuary2019.pdf>
13. Utilities one. Ensuring Compliance with Codes and Regulations in Construction Project Management. 2023. <https://utilitiesone.com/ensuring-compliance-with-codes-and-regulations-in-construction-project-management>
14. Anonymous. Practices for Quantity Surveyors in Construction Projects. Quantity surveying hub. 2024. <https://quantitysurveyinghub.com/>
15. Agha KA, Ogbonna NJ. Assessment of quantity surveyor's perception on risk management practice in construction projects in Ebonyi state. World Journal of Advanced Research and Reviews, 2022, 16(03), 433-445. Article DOI: 10.30574/wjarr.2022.16.3.1324
16. Nadaf AN, Kulkarni SK. Application of Quantity Surveying techniques for cost control of building project. International Journal of Management, Technology and Engineering. 2019; IX (I): 2249-7455
17. Anugwo IC, Okorie VN. Quantity Surveyors Role in the Construction Health and Safety Management in Nigeria. IOP Conf. Ser.: Earth Environ. Sci. 2021; 654 012020
18. Jeremy LU. The Evolving Role of a Quantity Surveyor in Green Future. 2023. <https://www.swinburne.edu.my/campus-beyond/the-evolving-role-of-a-quantity-surveyor-in-green-future.php>
19. Cunningham T. Cost Control during The Construction Phase of the Building Project: - The Consultant Quantity Surveyor's Perspective. School of Surveying and Construction Management , Technological University Dublin . 2022.
20. Babalola A, Anifowose O. A Study of the Compliance of Practicing Quantity Surveyors with the Professional Code of Conduct in Nigeria. IOSR Journal of Social Sciences and Humanities. 2015; 20(1): 16-20.
21. Llale J. The results of a survey and a case study regarding the role of quantity surveyors in public-private partnerships projects in South Africa. Conference: 9th annual quantity surveying research conference port Elizabeth, South Africa. 2016

Citation: Nnadi EOE, Obiechefu GC, Egwuagu OM. Quantifying Compliance: Quantity Surveyors as Guardians of Public Funds in Construction Projects: A Comprehensive Review. *Elite Journal of Scientific Research and Review*, 2024; 2(1): 1-12

22. Rajapaksha RSV, Devapriya KAK, Parameswaran . Awareness and perception of quantity surveyors toward the smart construction concepts a. Faru proceedings -2023. Doi: <https://doi.org/10.31705/faru.2023.12>
23. Keung C, Yiu KTW, Feng Z. Building Information Modelling in quantity surveying practices: current state and future challenges in Hong Kong. Journal of Information Technology in Construction, 2022; 27:1060-1074. DOI: [10.36680/j.itcon.2022.052](https://doi.org/10.36680/j.itcon.2022.052)
24. Zhan Z, Tang Y, Wang C *et al*. System Dynamics Outlook on BIM and Lean Interaction in Construction Quantity Surveying. *Iran J Sci Technol Trans Civ Eng* 46,2022; 3947–3962. <https://doi.org/10.1007/s40996-022-00833-w>