

**2024 NATIONAL CONFERENCE AND ANNUAL GENERAL MEETING OF THE NIGERIAN
INSTITUTE OF QUANTITY SURVEYORS**

THEME:

**STRENGTHENING THE QUANTITY SURVEYING PRACTICES AND PROCESSES FOR
GROWTH AND SUSTAINABILITY IN A TURBULANT ECONOMY**

TOPIC:

**EXPERT INSIGHTS INTO STANDARDIZATION OF QUANTITY SURVEYING
DOCUMENTATIONS AND PRACTICE MODEL**

BY:

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ABSTRACT

The Quantity Surveyor has been defined as a person who is an expert in procurement, costing, measurement, economics, financial management and contractual administration, in construction projects development, from early stage, until the completion of construction projects. The role of QS has been evolving in all phases of construction projects lifecycles, from the inception stage, feasibility stage, design stage, construction and upon the completion of the project. The central focus of this topic is Quantity Surveying documentations, and since over 70% of QS documentations and services, especially in Nigeria revolve around the Bills of Quantities, which has also remained the principal contract document for most projects contractual and financial administration, this paper will dwell extensively on the bills of quantities and the extent of its under-utilisation and abuse in the Nigerian construction industry. Several literatures the author consulted during the preparation of this paper from different parts of the world indicated that the use of BOQ in construction projects will be on the decline in the future, in view of growing emphasis on some emerging construction procurement systems other than the traditional system, and one of the objectives of this paper is to explore the validity of this claim. The paper will therefore briefly consider the competences of the QS, the various construction project procurement systems, the contents and uses of a typical bills of quantities, with the view to establishing whether the bills of quantities is still relevant or otherwise, in construction development projects in Nigeria. Some case studies on the under utilisation and abuse of bills of quantities by the Quantity Surveyors themselves and other stake holders in Nigeria will be explored. And finally, the paper will come up with recommendations on the best ways to repackage the Quantity Surveying profession in Nigeria for more effectiveness, within the context of our local and peculiar socio-economic/political circumstances.

Keywords:Expert insights; Standardisation, Quantity Surveying; Documentations; Procurement; Competences; Bills of Quantities.

INTRODUCTION

The Quantity Surveyor has been defined by Okereke, (2020) as a person who is an expert in procurement, costing, measurement, economics, financial management and contractual administration, in construction projects development, from early stage, until the completion of construction projects. The role of QS has been evolving in all phases of construction projects lifecycles, from the inception stage, feasibility stage, design stage, construction and upon the completion of the project. It is the quantity surveyor's responsibility to advise the client, architect and engineer on all financial and contractual matters from the pre-tender stage right through to the completion of the project. For the quantity surveyor to accomplish this role he must develop a comprehensive understanding of the various construction methods and have a transparent understanding of the different forms of contract and sub-contract agreements available in the construction industry.

Quantity Surveyors are initially involved with a capital expenditure phase of a building or facility, which is the feasibility, design and the construction phases, but they can also be involved with the extension, refurbishment, maintenance and demolition of a facility. They work in all sectors of the construction industry worldwide. In real estate this covers residential, commercial, industrial, leisure, agricultural and retail facilities. In infrastructure it covers roads, railways, waterways, airports, seaports, coastal defenses, power generation and utilities. They may also work in process engineering, such as chemical engineering plants or oil rigs. As quantity surveyors they may be working as consultants in private practice, for a developer or in the development arm of a major organization (eg retailer, manufacturer, utility company or airport), for a public sector body or for a loss adjuster. On the contracting side they could be working for a major national or international contractor, a local or regional general contractor, for a specialist contractor or sub-contractor, or for a management style contractor (Okereke, 2016).

The central focus of this topic is Quantity Surveying documentations, and since over 70% of QS documentations and services, especially in Nigeria revolve around the Bills of Quantities, which has also remained the principal contract document for most projects contractual and financial administration, this paper will dwell extensively on the bills of quantities and the extent of its under utilisation and abuse in the Nigerian construction industry. Several literatures the author consulted during the preparation of this paper from different parts of the world indicated that the use of BOQ in construction projects will be on the decline in the future, in view of growing emphasis on some emerging construction procurement systems other than the traditional/conventional procurement system, and one of the objectives of this paper is to explore the validity of this claim. The paper will therefore briefly consider the competences of the QS, the various construction project procurement systems, the contents and uses of a typical bills of quantities, with the view to establishing whether the bills of quantities is still relevant or otherwise, in construction development projects in Nigeria. Some case studies on the under utilisation and abuse of bills of quantities by the Quantity Surveyors themselves and other stake holders in Nigeria will be

explored. And finally, the paper will come up with recommendations on the best ways to repackage the Quantity Surveying profession in Nigeria for more effectiveness, within the context of our local and peculiar socio-economic/political circumstances.

COMPETENCIES OF THE PROFESSIONAL QUANTITY SURVEYOR

Competencies can be defined as the ability a person should have in a given occupational area subject to external and internal factors like organization size, type, and age (Barret, 1992). Holmes & Joyce, (1993) defined competence as “a description of an action, a mode of behaviour or outcome that a person should be able to demonstrate, or the ability to transfer skills and knowledge to new situations within the occupational area.”

In the construction industry the quantity surveyor can be seen as the economist and cost accountant, whose services facilitate the client to obtain the maximum value for the client’s investment. There are three aspects which reflect value for a client in the construction industry, namely cost, time and quantity. Quantity surveyors add value to the construction project performance by using the appropriate competencies. It is therefore important for an assessment of the quantity surveyors competencies in order to highlight the continuing relevance of their services in the construction industry (Nkado& Meyer, 2001:483).

The Royal Institution of Chartered Surveyors (RICS) and the Nigerian Institute of Quantity Surveyors set out the competencies required by professional quantity surveyors in three categories, namely basic -, core - and optional competencies. Under the structure of the RICS the basic competencies are present in all construction professions, the core competencies primarily for quantity surveyors and the optional competencies are required for specialization in a specific field.

A Study conducted by Nkado and Meyer (2001:484) identified 23 defined competencies which apply to quantity surveyors in South Africa. A questionnaire was sent to randomly selected members of the ASAQS of a different demographic background. The questionnaire listed the 23 competencies in alphabetical order.

The respondents were asked to rate the importance of the competencies for a career as a professional quantity surveyor at present, the importance in the future and the level of evidence of each competency in the quantity surveying profession. Rating worked on a scale of 1 to 5 with 1 being ‘not important’ and 5 being ‘very important’. The researchers ensured the respondents anonymity to attain an honest response.

It is interesting to note that three of the traditional core competencies are rated in the top five competencies required by quantity surveyors at present, the three being procurement and financial management, economics of construction and construction contract practice. The results showed that management orientated competencies were rated of higher importance for future services while the highest importance for current services were technically orientated (SitiNurAishahMohd Noor et al, 2020)

The five most important competencies required by quantity surveyors at present are:

- Computer literacy and information technology;
- Procurement and financial management;
- Economics of construction;
- Construction contract practice;
- Measurement.

The five most important competencies required by quantity surveyors in the future are:

- Computer literacy and information technology;
- Procurement and financial management;
- Economics of construction;
- Project management;
- Marketing.

Competencies utilized by quantity surveyors with greatest efficiency at the moment are:

- Measurement;
- Procurement and financial management;
- Professional practice;
- Construction contract practice;
- Economics of construction.

It is evident that management orientated competencies will grow in importance and will replace the traditional technically orientated competencies as the core competencies of the quantity surveyor (Nkado& Meyer,2001:490).

CONSTRUCTION CONTRACT PROCUREMENT STRATEGIES/SYSTEMS

The British Standard on Construction Procurement defines a Construction procurement strategy as a “plan of action for funding, organization, management, selection and payment of supply chains for the

design, fabrication and which may include the operation of constructed facilities to achieve a desired objective” (BS8534: 2011). It should include potential sources of supply, terms and types of contract / procurement, conditions of contract, type of pricing, and method of supplier selection’ (APM, 2006).

BS 8534 (2011) cited in Anikwe (2023) identifies six variables of construction procurement to include:

- Source of funding
- Selection method
- Price basis
- Responsibility for design
- Responsibility for management
- Extent of supply chain integration.

CONSTRUCTION PROCUREMENT METHODS

Choosing the appropriate procurement method is critical in the construction industry. Choosing the right procurement route, construction contract, and project management can make a significant difference in the success of a construction project. For the purpose of this paper, procurement routes can be classified and grouped under conventional and hybrid routes as follows:

A. Conventional Route

The conventional route **consist** of very highly conceptualised procurement methods and the various standard form of contract such as JCT, FIDIC etc designated specific standard forms of contract for each of them. Under the Conventional Route are the following methods:

1. Traditional Method

Traditional procurement is a time-honoured approach in the construction industry. The cornerstone of traditional procurement lies in its separation of design and construction responsibilities, typically involving multiple consultants and contractors. In traditional procurement, the client is actively involved in selecting and managing separate entities, including the architect, quantity surveyor, project manager, mechanical and electrical consultants, etc. This approach allows the client to retain significant control over the design and budget parameters but also necessitates a greater investment of time and resources to manage and coordinate between the different parties. The traditional method’s compartmentalised nature often leads to a clear demarcation of roles and responsibilities. However, it also requires the client to act as the central point of communication and decision-making. In short, traditional procurement offers clients a high degree of control and involvement but demands a substantial commitment in terms of time and management resources. It’s a well-established method that has stood the test of time. Traditional

construction's flexibility and customization makes it an excellent choice for projects with complex design elements, long timelines, and multiple stakeholders.

2. Design and Build Methods

Design & Build is a procurement method where one entity, the D&B contractor, is responsible for both the design and construction of a project. This unified approach means that the client deals with a single point of contact for all aspects of the construction process, simplifying communication and decision-making. In traditional construction, the project owner assumes the majority of the risk. The owner engages separate entities for design and construction and is responsible for negotiating the various contracts, coordinating work between the two parties, and navigating any disputes that arise. With the design-build method, the risk is often shared between the owner and the design-build team, providing a more balanced risk distribution. Design-build construction is a great choice for projects that require speed, efficiency, and a more integrated approach.

3. Engineering, Procurement and Construction (EPC) Method.

EPC is an acronym, which in construction stands for Engineering, Procurement, and Construction. Engineering refers to all designs and specifications needed in the project. Procurement is to buy all the materials, equipment, and tools needed. Construction is the execution of the project until its completion. EPC project delivery is the way a client seeks a specialized contractor to carry out a project. The EPC handles the engineering design, the procurement of the resources that the project needs, and its construction. All these are under the fixed cost and the fixed duration of the project. In the end, the EPC delivers a fully operational project to the client.

4. Turnkey Projects

A turnkey contract is a contract where the contractor provides all the necessary resources and personnel to complete the project. This means that the contractor has complete control over what is done on the project. The contractor may also provide pre-determined specifications or guidelines for how the project should be completed.

In EPC, an employer will provide basic design to a contractor, and the latter shall perform detailed design based on a received basic design. In Turnkey Project, the Employer will only provide certain project technical specifications. It is the contractor's responsibility to prepare the basic and detailed design of the project. In turnkey, the contractor is responsible for performing construction and commissioning, startup, and taking over the plant to an employer. Still, another third person in EPC may be responsible for commissioning and startup.

B. Hybrid Procurement Route

Hybrid procurement combines elements of both traditional and design-build procurement methods. It involves the appointment of a lead consultant to manage the design team and coordinate the project. This route is best suited for medium to large-scale projects with complex design requirements.

Hybrid Procurement Route is classified in the following ways:

1. **Management Contracting:** The employer appoints a management contractor to manage the construction phase and employs a series of works contractors to carry out the construction work.
2. **Construction Management:** The employer appoints a construction manager or main contractor to manage the construction process and employs a series of works contractors to carry out the construction work.
3. **Public Private Partnerships (PPP):** Public Private Partnership procurement method is a direct hybrid of the EPC/Turnkey system. PPP program involved private companies in designing, financing, constructing and managing new public assets often called **Greenfield** projects or upgrading and managing of existing facilities, **brownfield** projects. In return the private firms recover their investment and profit through long-term repayments from the government or revenue generated from the project (Anikwe, 2023). The Public Private Partnership procurement route is often used for large complex commercial or infrastructure projects. PPP leverages on management abilities and financial savvy of private enterprises, relieves the government of the capital or financial burden associated with the execution and completion of public projects and transfers the risks associated with the infrastructure projects to private firms. It come in a variety of shapes and sizes, depending on the private party's level of investment, ownership, control, risk sharing, technical collaboration, duration, financing, etc. involvement and risk tolerance.

BILLS OF QUANTITIES

A bill of quantities according to Okereke (2020) is a document which contains in an itemized and sequential manner, the quantities of materials and workmanship requisite for the execution of a construction project. The bill of quantities is prepared in accordance with rules stipulated in the standard method of measurement for building works (SMM) which requires that a bill of quantities shall fully describe and accurately represent the quantity and quality of works to be carried out. The preparation of bill of quantities is based on the measurement taken from drawings and specifications produced by architects or engineers. The accuracy of the bills of quantities prepared by the Quantity Surveyor is dependent on the availability of full particulars of the working drawing. The fuller and more detailed the

drawings, the better the chances of an accurate bill. For a contract which is based on BOQ, the bill forms a sound basis for contractor selection, price commitment; contract management, and infact the general financial and contract Administration of the project.

Essentials in Good Bills of Quantities

Essentially, the bill of quantities must describe clearly, fully and precisely the requirements of the architect and the engineer and should be so arranged that the builders estimator can quickly, easily and accurately arrive at the estimated cost of the work. This being so, it is obviously important that the Quantity Surveyor should be able to express himself clearly in a language that will not be misunderstood and to do this he must have a sound knowledge of building materials and construction and must be vast in customs prevailing in the construction industry. He must moreover be careful and accurate in his calculations, have a systematic and orderly mind and be able to visualize the drawings and details with which he has to deal.

Uses of Bills of Quantities

The major uses of bills of quantities according to Okereke (2020) are discussed as follows:

1. Competitive Tender

The bill of quantities provides a uniform basis for the pricing of competitive tenders. Each contractor receives the same accurate amount of quantity and quality of work set out in a convenient way for pricing. The contractor is not expected to change the quantities or qualify the bill in any way since all tenders are required to be based on the same amount of information and this is clearly stated in the invitation for tenders. Section 5 of the code of procedure for single stage elective tendering stipulates that the tender period should be sufficient to allow the contractors to obtain all necessary prices and quotations. It also requires that the tenders must be returned before a set hour on a particular date (mostly 12.00 p.m on the last date) and that all late tenders should be rejected.

2. Valuation of Variation

A variation is an alteration or modification of the design, quality or quantity of the works as shown in the contract drawings and described in the contract Bills of Quantities. A variation is often accompanied by the architects instruction and JCT-80 (Clause 13.5.1.1) stipulates that where the work which constitutes a variation is of similar character to be executed under similar conditions and does not significantly change the condition and does not significantly change the quantity of work set out in the contract Bills, the rates and prices in the bill of quantities shall be used in its valuation. However, clause 13.5.1.3 made a contrary provision in respect of work which is not of similar character or where the quantity substantially changes

from the original quantity. Such are valued with rates and prices different from those in the Bills of quantities.

3. Interim Certificate

The JCT standard form clause 30.1.1 requires that the architect shall from time to time issue interim certificate stating the amount due to the contractor from the client and that the contractor is entitled to payment within 14 days from the date of issue of each interim certificate. The interim certificate is usually preceded by interim valuation. The valuation is carried out by the Quantity surveyor for the purpose of ascertaining the amount of work done by the contractor within a given period usually stated in the appendix section of the bill. The quantity of work thus far ascertained is related to the quantities of the works together with their prices as contained in the contract bill based on which the actual value of the work done is determined. This is then confirmed by the architect by the issue of a certificate which authorizes the client to pay.

4. Cost Analysis

The clients increased desire to obtain good value for money in their projects has brought about increased application of cost planning techniques during the design of buildings. Cost planning is mostly based on the cost analysis of buildings. Most Quantity surveying offices cost analyze the priced bill of quantities of projects executed by them. In doing this the total cost of the building is broken down into the elements that make up the building. These elemental costs are expressed as cost per m² of floor area and stored for use when cost planning future projects. In Britain these cost data are sent to the B.C.I.S. of the Royal Institute of Chartered Surveyors for publication.

5. Settlement of Final Account

The JCT-80 standard form (30.6.1) provides that either before or within a reasonable time after practical completion, the contractor should send to the architect, or when instructed by the architect to the Quantity Surveyor all the documents necessary for preparing the final account. Based on these and other information available to him, the Quantity Surveyor prepares the final account. The contract sum as shown in the contract bill is adjusted in light of all variations, adjusted prime cost and provisional sums, the value of remeasured provisional quantities, all claims that have been certified as well as all other items which the architect considers contractually necessary for the computation of the final account for the project.

6. Programme Planning

One of the characteristics of the Bill of quantities is that it arranges the work in a sequential manner. The contractor based on this sequential arrangement prepares his programme chart in which all the activities are listed along with the time in which they should be accomplished such that the entire building work is completed before the expiration of the contract period as indicated in the form of tender.

7. Material Schedule

In addition to programme planning, the contractor's Quantity Surveyor breaks down the quantities in the Bill of Quantities in such a way that enables the contractor know the quantity of the various materials, plants and labour he needs to provide for the project.

8. Cashflow Budgeting

In addition to financial reports, the Quantity Surveyor prepares cash flow budget for the client. Cash flow is defined as the estimate of cash receipts and cash payments over a given period. It is the actual movement of money in and out of a business. Cash flow has two aspects: Cash in flow (the receipts) and the cash out flow (the payments). When the total cash payment is deducted from the total cash receipts we get the estimated cash balance. The cash flow helps the client or the contractor not only in anticipating the cash needs but also in exercising proper control over the management of cash in the organization. Such control and monitoring prevents the client or a contracting organization from experiencing financial crises.

9. Contractual claims

A claim is a reimbursement for extra costs incurred by a party to a contract which was not envisaged during tendering and which occur as a result of changes and defaults of the contract conditions. In a building contract both the contractor and the client stand the chances of making claims. But based on the contract conditions, the contractor is much more prone to making claims than the client. As a result of this, the contractor's Quantity Surveyor who undertakes most of the financial activities in a project on the behalf of the contractor, from time to time keeps close watch on those clauses of the JCT contract conditions (as listed later) which empower the contractor to make claims should such conditions be defaulted by the client

10. Fluctuation Claims

Apparently, for building contracts other than fixed price contracts, a fluctuation clause is usually inserted which provides for the adjustment of the net increase or decrease in the cost of labour, material and plant after the date of tender. The term fluctuation is generally used to denote changes in the contract sum due

to changes in the basic prices of labour and material over time (inflation or deflation). The assessment of fluctuation continues as the contract lasts and the cumulative total is added to each interim valuation.

Contents of Bills of Quantities

It is important at this juncture to discuss the various components of a bill of quantities, their arrangement and the parts each has to play in the entire construction operation. Apparently, the arrangement of the contents of a bill of Quantities is made as straight forward as possible and all necessary measures are taken to eliminate ambiguities which might lead to misunderstanding when operation starts on site. However, a little variation in the arrangement of the contents obtains in different practices. Essentially, a bill of quantities must contain the following

1. Form of Tender

This is usually contained in one or two pages. It is the form in which the tenderer's offer is made. It has provision for the name of the contractor, that of the client, the tender sum in figures and words, the completion period, the period when the tender is to be kept open for acceptance, date of offer and signature. The form of tender may be detached from the bill of quantities and returned in a separate envelop from the one containing the bill of quantities. In such case the envelop containing the form is opened first and the bill of quantities later examined if the sum quoted is acceptable, otherwise the bill of quantities will be returned to the contractor unopened.

2. Instruction to Tenderers

Usually contained in a page or two, it gives a general information on how the tender is to be prepared and returned, including date, time and address where the tenders are to be sent. It may give an idea of how the arithmetic errors are to be treated and whether the fluctuation clause is deleted or amended. Any point which will affect the particular job and hence the tender will be highlighted to ensure that the contractor tendering is aware of it. It is usually stated here that the client is not bound to accept the lowest tender so that the tenderer will know that what is required is a fair estimate of the cost of the job and not necessarily a cheap tender.

3. Articles of Agreement

This is the form in which the contract is eventually signed between the successful contractor and the client. It gives such information as the date it is to be signed, the full names and address of the contractors and the client, a description of the project, the list of drawings and their numbers, the contract sum, the

names and addresses of the consultant Architect and Quantity Surveyor and finally the names, addresses and occupations of both the clients and contractors witnesses. It also contains a brief recitals of the contract.

4. Conditions of Contract:

These are general conditions which clearly express the duties and obligations of both the contractor and client throughout the entire construction operation. The most commonly used standard forms of contract in Nigeria and globally include, the Joint Contract Tribunal (JCT) form, International Federation of Consulting Engineers Standard Form (FIDIC), New Engineering Contract (NEC) etc. Where a standard form of contract such as JCT is to be used, it is not necessary to include the conditions of contract in the bills of quantities in view of the inconveniences and financial losses encountered in the course of typing, duplicating and photocopying them. In such cases, the tenderers should be informed where to inspect the forms if they do not have copies of these themselves. However, where not all the conditions in the form are applicable to the contract, the relevant ones are extracted from the form and included in the Bills of Quantities. For instance Insurance, time of completion, fluctuation clauses, clauses on disputes etc. may be extracted and included in the bill if they are relevant to the contract.

5. Preliminaries

The preliminary section of the bill of quantities contain items which have direct cost implications on the project but which do not form part of the finished physical structure. The preliminary bill is usually referred to as Bill No. 1 in the bill of quantities and its main purpose is to set out all the general liabilities and obligations of the contractor covering the contract in order that the contractor may have the opportunity of pricing them individually rather than including them to the measured quantity rates. The problem of measuring preliminaries only lies in getting the correct description to reflect the full liabilities of the contractor.

6. Trade Preambles

This is a general description of materials and workmanship required for each section of the bills of quantities. It gives the nature of specification clauses in that they describe the materials to be used and the standard of workmanship to be achieved and give details of any tests which may have to be carried out.

7. Measures Bill

The measured items are grouped into sections and arranged in a particular order within these sections in order to facilitate rapid tracing of items and to aid the estimator when pricing the items. At the end of each section of the measured bill is a COLLECTION of costs of the items in that very section and these 'collections' are normally carried to general summary.

8. Appendix

The following items are usually contained in the appendix section of the BOQ:

- (a) Schedule of basic rates
- (b) Day work schedules
- (c) List of drawings
- (d) Period of final measurement
- (e) Defect liability period
- (f) Date for possession and completion
- (g) Prime Cost and Provisional sums
- (h) Period of interim Certificate
- (i) Period of honouring of Certificate
- (j) Percentage of certified value retained
- (k) Limit of retention fund
- (l) Liquidated and ascertained damages
- (m) Method of payment.

RELEVANCE OF BILLS OF QUANTITIES IN THE CONSTRUCTION INDUSTRY TODAY AND IN THE FUTURE

A good number of literatures the author consulted in the course of preparation for this paper indicated that the BOQ was only popular with the traditional procurement system in which it was particularly useful for assessment of competitive tenders from the contractors, stating that with the emergence of modern procurement systems like the design and build with its other hybrids, which do not use BOQ for tendering

purposes, that the use of BOQ in the construction industry has been on the decline. Some of these articles also expressed concern that the use of BOQ might be heading towards extinction in the future. The author took his time to thoroughly explore some of these articles with the view to establishing whether there were strong empirical basis for such conclusions but realised that there wasn't much. The finding was that most of these assertions were predicated on lack of in-depth knowledge by the authors of what the BOQ really is and the over assumption, concentration and emphasis of the various authors on the use of BOQ for tendering and bidding purposes. The author found this conclusion erroneous and misleading and consequently took his time to comprehensively present an all-encompassing teaching on the real meaning, broad uses and contents of a typical BOQ in this paper to enable the readers understand where the various authors were missing it, so as not to lose faith on this indispensable document which formed and will continue to be the bedrock of the Quantity Surveying professional practice the world over.

In the first place, those presumably modern procurement methods like design and build and its other hybrids like EPC, Turnkey and various models of PPP as presented above, have been there over the years and have all along been used for highly complex, technical, specialised and often times commercial oriented projects. BOQ are not used in the tendering/bidding and contract engagement between the client and the single entity that handles the projects when using those procurement systems, not that the BOQ is not necessary for that purpose, but because these biddings take place at the very early stage of the project life cycle when adequate design for the project that would have supported the preparation of a comprehensive and detailed BOQ for tendering/bidding purpose has not evolved. This does not imply that a comprehensive and detailed BOQ will not be prepared for the same project when all the details are available because that is sacrosanct both for efficient and timely contract, project and financial administration of the same project by all the parties directly involved.

It is also important to note that the single entity/design and build contractor who negotiated the contract with the client may not necessarily be the one to carry out the physical execution of the project on site and that's why that entity may also go with the name developer or a private partner. The contract price negotiation or bidding for the project at that stage which is often a fixed price contract, is often based on financial proposals submitted by the bidding contractors along with their design proposals and this is usually not comprehensively detailed like a normal BOQ for very obvious reasons. This is part of the reasons why design and build contract prices are usually astronomically high, because in the first place the contract is a fixed sum contract without much room for variations, and secondly all the risks associated with the project are borne by the design and build contractor. On the issue of indispensability of BOQ for efficient administration of all projects, most design and build projects go with two stage contract arrangement for their effective execution. The design and build contractor is often given a skeletal design, outline design or simply outline specifications by the client organisation (depending on whether it is outright design and build, EPC or Turnkey) on the basis of which he prepares his design and financial

proposal when bidding for the project. The implication is that after winning the contract, the design and build contractor will now resort or revert back to the traditional procedure of engaging the various consultants like the architect, engineers and quantity surveyors to carry out the normal design and documentations for the project on the basis of which he will carry out the second stage tendering for selection of the main contractor or sub contractors as the case may be during which a comprehensive and detailed BOQ for the project will manifest. On the other hand, if it is a well established multi-national contractor which sometimes is the case, the design and build contractor may proceed and carry out the detailed designs and other documentations including the BOQ using their in-house professional consultants. Therefore, the notion that the use of modern procurement systems like design and build means total exclusion of the BOQ and the QS on the project is a very big misconception that should be disregarded.

Also the BOQ and its use in the construction industry especially in Nigeria has being abused by the Quantity Surveyors themselves and others through misrepresentation of just the **measured** section of the BOQ as the BOQ itself. This is the reason why the author has taken the pains to make a comprehensive presentation on the contents of a typical BOQ. The document BOQ is much more than the **measured or the naira and kobosegment**. Other components of the standard BOQ like the form of tender, articles of agreement, conditions of contract, preliminaries, trade preambles and even the appendix section of the bill must always be incorporated as a homogeneous document and the importance and application of all these sections in an efficient and hitch free procurement, cost management, contract management/administration, project management and even the overall financial administration of any construction project must be strongly emphasised by the QS. The NIQS/QSRBN may need to regulate and carry out strong oversight surveillance on this because the level of abuse of BOQ in this direction is enormous. This is very necessary if the dignity of the QS profession especially in Nigeria must be restored. All BOQ prepared for any construction contract no matter how small must go with all these contents and any violation must be sanctioned. The government and other potential construction projects proponents in the country should be more properly enlightened on what the BOQ really is, the broad uses other than just tendering and what the contents are supposed to be.

It is important to note that a detailed and comprehensive BOQ, though very useful to the client is of far more greater importance and indispensable to the contractor as no contractor can effectively and efficiently execute any project without a detailed BOQ. When the author worked in a construction company in Lagos in early nineties, his usual routine as contractor's QS whenever a new contract was won before mobilization to site used to be to remeasure the entire work in order to confirm the quantities in the contract BOQ to start with. This is because accurate BOQ was required for efficient material, labour and plant schedules. The company needed this particularly to determine the exact quantities of materials which we usually procured and supplied to the construction sites. We would then compare the

actual quantities with those in the contract BOQ to determine if there were discrepancies. If the quantities in the contract BOQ were lower than the actual quantities we would keep quite as that was to the company's advantage. However, if the contract quantities were lower than the actual, that becomes imminent condition for making claims for the contractor. We would then proceed to prepare the actual total market cost of materials, labour and plants, liaised with the company's accounts department to get the overhead expenses projected for that particular project with which we as contractor's QS prepared the total construction budget of what the entire project will cost the contractor and subsequently compared this with the actual contract sum to determine the actual amount of profit the contractor anticipates on the project even before we mobilized to site. Whereas the contract quantities if they were higher formed the basis for interim valuations, measurement and valuation of variations, fluctuations and other contractual claims, the remeasured and accurate quantities formed the basis upon which the contractor's QS prepares the contractor's cash flow budget and projections as well as determination of actual amount of work to be sublet to the domestic subcontractors. When payment for each certificate was received, the remeasured and accurate BOQ forms the basis upon which the contractor's QS carries out **cost/value reconciliation** to determine the amount of profit the contractor is making on each certificate. Therefore, the contractor's QS and the BOQ are very indispensable to the contractor's organization irrespective of the procurement route through which the contract was acquired.

UNDER UTILIZATION AND ABUSE OF BILLS OF QUANTITIES – SOME CASE STUDIES

1. EEC (Now EU) Sponsored Rural Health Facilities Project in Ondo, Benue and Kwara States Under Lomé II Convention.

An Architect's firm in Lagos collected an all-in consultancy commission for Architecture, Structural Engineering, Quantity Surveying and Electrical/Mechanical Engineering services for these projects in the early nineties and engaged the author to take care of the QS post contract services for the project and that was the author's very first job after NYSC. Thank God for the superlative training he received in school on contract administration as well as construction contract law and arbitration, for as at then he was more like a walking JCT. He performed exceedingly well on the job to the extent of becoming indispensable despite the fact that he was paid peanuts compared to the actual QS consultancy fees those men were collecting for the QS services. The BOQ which was of course prepared by a quack was a charade and because there was also no properly authenticated structural design for the projects because of the absence of the structural engineer on the project, there were mountains of variations and remeasurements occasioned by poor ground conditions as well as other deficiencies identified by the contractors. All these variations and other claims were usually prepared by the author and sent to the EEC people for approval through the architects but the author was occasionally summoned by the EEC to substantiate the

submissions as the architects were often not able to convince them. It was then that the author realised that most architects are very deficient in construction contract administration. He however left the job for a construction company in Lagos when the architects failed to meet his financial demands and of course to the detriment of the architects who pleaded almost on their knees and promised to turn a new leaf but it was too late. Most unfortunately, thirty something years later the exploitation of the QS and abuse of the BOQ in this fashion has even increase more tremendously.

2. Faculty of Environmental Services Building Project at Imo State University Owerri

This was another case of all-in consultancy commission to the architect especially at the pre-contract stage around 2009. The documentations and procurement process for this complex project was carried out with the contract awarded without the involvement of a consultant QS. The BOQ which also turned out to be a charade was prepared through the back door. However, during the post-contract stage, the university set up a consultancy committee headed and dominated by architects and the author was included to render QS post contract services on the project. During the execution of the project which was splitted up among three contractors, the contractors discovered a lot of discrepancies between the contract drawings and the BOQ. There were so many things in the drawings especially aluminium sliding window which were in the drawings but were not captured in the BOQ. The architects argued that it was the fault of the contractors since they were given the drawings along with the BOQ during tendering. The author told them that giving the contractors the drawing during tendering is inconsequential as any contractor who unilaterally changed any quantities in the BOQ during tendering would be adjudged to have qualified the tender which would have automatically disqualified him. I therefore advised that the discrepancies in line with the conditions of contract should be treated as variations. The architects accused me of taking sides with the contractors and I replied that as a consultant QS, even though I was appointed by the client, I should be impartial and should operate with maximum skill and care as an arbiter between the client and the contractor or else I would be liable to the contractor for professional negligence. The architects insisted that the contractors are liable to bear the additional costs arising from the discrepancies on the ground that they ought to have seen them before submitting their tenders and I finally told them that what I said was the contractual panacea for the problem and warned that even if the matter goes to court or arbitration that it will end up in what I said.

The disagreement lingered for a while after which the contractors abandoned the projects and left the site. This eventually led to marathon meetings of all the parties and the university Council for quite a long time and at the end of the day a decision was reached that all the additional works should be remeasured and treated as variations. Now the matter was referred to me as the QS to carry out the remeasurement. In

order not to be accused by anyone of collusion with the contractors, I told them that the magnitude of work involved in the remeasurement was enormous and would require additional hands from other Quantity Surveyors. They agreed and brought in two senior Quantity Surveyors, one of whom was a full time staff of the university while the other was an adjunct staff. One of the wings of the project which has four wings with open court yard was assigned to each of the QSs while the two other wings handled by one contractor was assigned to me. At the end of the day the full time QS submitted additional cost of over N11Million, the adjunct QS submitted additional cost of over N10Million while I came up with additional costs of over N9Million each for my two wings.

Therefore, because of the refusal to appoint and utilise the expertise of the QS right from the precontract stage of the project which would have cost the client a maximum of about N5Million in consultancy fees as at then, the client ended up paying additional costs of over N40Million as a result of this recklessness. This kind of professional recklessness and abuse of the QS profession and the BOQ are still going on all over the country today.

3. Imo State University Faculty of Engineering/Campus Project at UmunaOkigwe, Imo State.

This project which comprised of thirteen different work packages/buildings was awarded around 2007. Majority of the buildings were completely new while few others involved part demolition and amendment or outright demolition of existing buildings in the site formerly used as a secondary school. The university on the directive of the state government set up a well constituted consultancy services group/team for the project, comprising a DVC an architect as the group leader, the then Dean of the faculty of environmental sciences and one other professor from architecture department formed the architects crew with the Dean serving as the deputy group leader, one professor of structural engineering from the faculty of engineering served as the structural engineer, while the author served as the only QS in the team as at then. The architect as usual took their time of several months to produce their designs and working drawings, likewise the structural engineer, but when it came to the preparation of the BOQ they wanted to mount pressure on me which would have resulted to shoddy and substandard job, but I vehemently resisted that and insisted that I must be given adequate time to prepare standard BOQs and that eventually prevailed. I eventually came up with BOQs for the thirteen buildings all with all the standard components/contents of a typical BOQ as explained above, submitting fully priced copies as they requested along with unpriced copies for the contractors tenders. The copies looked beautiful with the university logo and other details on the cover page and that won the admiration and praises of my then Dean who served as the sub-team leader as well as the DVC.

The Quantity Surveyors at the Imo State Ministry of Works were to exercise some oversight functions over the project. Much later, the DVC and the Dean invited me to inform me that the Quantity Surveyors at the Ministry of Works rejected my BOQs and insisted that they will prepare theirs. My bosses full of anger informed me that they struggled with them for quite some time over the issue but they eventually prevailed to their utter disappointment. Their major point of argument was that there are a lot of administrative costs belonging to the Ministry of works which ought to be inbuilt in the BOQ which they alleged that I did not do. Meanwhile while preparing my BOQs, I brought up this issues with my bosses and we agreed to make allowance for project vehicles and few other administrative cost on some few selected project packages and not all, which I did, but our colleagues in the Ministry argued that that was not adequate and infact that it was their prerogative to do that and that whatever that was added belongs to them since the IMSU consultancy Group will be paid consultancy fees by the government, and that the contractors must withdraw any such additions and give to them whenever they were included in valuations or else there would be problems. Consequently, our colleagues in the Ministry came up with very shoddy things they called BOQ which was more or less cloned from my own with the preliminaries of all the thirteen packages padded with all kinds of monies they called administrative cost with the result that the proportion of monies left in the preliminaries after the Ministry of Works administrative cost became insignificant. I never heard anything after that concerning tendering, tender reporting and analysis whether any such things ever happened all I heard at the end of the day was that the contracts had been awarded and we were given the Ministry of Work BOQs for the purpose of the post contract services and some other Quantity Surveyors from the university side were brought into the project at this juncture.

During the post contract stage, colleagues in the ministry didn't care much about the success of the project, all their interest was on their money in the BOQs and they kept on quarrelling with the university consultants on one hand and the contractors on the other hand over a lot of issues. When University consultant Quantity Surveyors prepared interim valuations which was usually submitted with the architects certificates to the ministry, they would mutilate it and remove and add whatever they like before sending to the government for approval and payment. They also constantly quarrelled with the contractor over the withdrawal and handover to them the monies they included in the BOQs which we were compelled to always capture in the valuations otherwise the valuations would not see the light of the day. These inconsistencies and quarrel between the contractors and our ministry colleagues eventually frustrated the projects because some of the powerful contractors who were influential in government kept on complaining to the then governor of the state who eventually suspended the project. The projects I understand were eventually completed many years later by Governor Rochas Okorocha through direct labour or so. All I can recall was that colleagues in the ministry during that regime consistently complained bitterly that the government never allowed them to participate in government construction projects any more. Can you eat your cake and have it?

4. OWERRI REGIONAL (MODERN) MARKET PROJECT NOW OWERRI MALL/SHOPRITE

The Owerri regional market project which was started in 1991 was a pet project of the then Imo State Government. However, because the laws of Imo State assigned market development and control to the local governments, the development of the Owerri regional market therefore came under the jurisdiction of the then Owerri Local Government Area. The main proponent of the market project formally designated as developer was Somachi Nigeria Limited. The market project which was planned and arranged into three phases was planned to be the largest and all-encompassing modern market not only in Nigeria, but in the Sub-Saharan Africa. The project site is located along Egbu Road in Owerri. The market project which was designed and planned to cover all product lines one can ever think of, was intended to form a fulcrum for the integration of the economy of the entire South Eastern States. The popular Tejuosho Market in Lagos is just about the size of phase one of the Owerri modern market.

The original plan for the market which had a garage capacity of over ten thousand cars was so fabulous and complex to the extent that enormous portion of the market was designated for electronics and agreement was already reached with the South Eastern electronic dealers in Lagos to completely relocate to Owerri which was intended to be the largest hub of electronics not only in West Africa, but the entire Sub-Saharan Africa. The first phase of the project which was abandoned in 1993 constitute the massive structure which people used to see on that site when driving along Egbu Road in those days and which was few years ago transformed and converted as Owerri Mall which presently houses the Shoprite. The total cost of the project as at 1991 was a staggering sum of N500 Million which if translated to the present value will today run into several trillions of naira. The procurement route adopted for the project was typically Public Private Partnership (PPP) with the Build Operate and Transfer (BOT) model. The cost of the project as at then was so colossal that one single financial institution could not muster the finance then, hence the project was financed by a consortium of lenders comprising of seven financial institutions in Nigeria, who were originally bound together by a 'Trust Deed'. The institutions included the then Nigerian Bank for Commerce and Industries (NBCI) with headquarters in Victoria Island then, Progress Bank of Nigerian PLC, African Continental Bank PLC (ACB), ABC Merchant Bank PLC, NICON Insurance Corporation Lagos, Reinsurance Corporation Lagos, and the Bil Construction Company Limited (BCCL) which served as the main contractor then. NBCI was the Agent Bank, that is the leader of the consortium. The trust deed was the consortium agreement spelling out the obligations and liabilities of the members, the ratio of financial contributions, the benefit as well as the modalities for the management of the funds in the pool.

The original arrangement was that all financial transactions on the project such as contractor payment certificates, professional fees etc were submitted to the Agent Bank, NBCI, who effects the payment from the pool. This arrangement which worked perfectly from the inception of the project started having some challenges along the line when the agent bank and some other members of the consortium started having liquidity challenges in their organizations and were no longer honouring their financial obligations to the consortium. With the change in management of Progress Bank, the new management of the Progress Bank entered into a joint venture agreement with the project Developer and proceeded with the funding of the project as a sole financier until 1993 when the project was finally abandoned after the Progress Bank's exposure on the project got to over a N100 Million. Although the author joined the services of the Progress Bank in 1991 with his first duty post in Kaduna where he was in charge of the Property and Administration Unit of the Bank in the Northern Sector, the project was all this while overseen on behalf of the bank by the other professional group, the Estate Surveyors who were in charge of the Head office property department then. In 1995 when the bank had started showing signs of distress and was already experiencing liquidity challenges, the then new Board of the bank considered the bank's huge investment in the project (N100 Million then which will translate to hundreds of billions of naira today) and decided to invest a little more to see if they could be able to recoup part of the huge investment with which to beef up the bank's dwindling financial base. The Board also felt that lack of competent in-house professional representative on the project was part of the problem and on further investigation they came to the conclusion that the author was the only professional in the Bank that have the capacity to manage the project and achieve the urgent result they anticipated. The Board therefore offered me appointment as Quantity Surveyor/Project Manager and charged me with the responsibility of completing at least the phase one of the project within the shortest possible time. They set up a 3-man Board standing committee for the project which the author was made a member, with the other two Board members on board to assist him in realising the project. The Board planned an instant investment of N20 Million on the project in order to bring the entire massive structure to what they considered the credibility stage (the roof level) to facilitate the sale of stall subscription forms to members of the public. However, the author's estimate for bringing the project to the level was around N67 Million which was too much for the bank to muster at that point in time.

The author therefore liaised with his committee members and the MD of Somachi Nigeria Limited, the Developer and advised the Board that giving the potential viability of the market project and the continuous pressure from the South Earners from all over the country on the completion of the project, that we can still go ahead and sell the subscription forms. The Board quickly approved and released funds with which we printed hundred thousand (100,000) copies of stall subscription forms which I took custody of. We planned to sell each form at N2500 then and with that we would have realised about N250 Million with which we would have completed the phase one and possibly the phase two of the

project. We had already concluded plans for the then Prime Time Nigerian Limited, an advertisement company to begin a nationwide jingles and promotions for the sales of the forms when the CBN/NDIC suddenly took over the Progress Bank and eighteen other bank in Nigeria in September 1995, and that brought an abrupt end to the project. Notwithstanding the relative success the project attained at the early stage, the BOQ was not prepared by a competent QS as the person who prepared it was neither a corporate member of the NIQS, nor registered with the QSRBN and the constitution of the professional consultancy team for the project of that magnitude was also quite faulty.

5. PROGRESS BANK HEAD OFFICE PLAZA COMPLEX PROJECT

The contract for the defunct Progress Bank head office plaza complex project was awarded in 1991 to Bil Construction Company Limited (BCCL). The original intension of the founding fathers of the project, the then management of the Progress Bank was to erect a 15-storey office plaza complex that would stand out as a monumental master piece not only in the Owerri capital city, but in the entire South Eastern Nigeria. Consequently, at the feasibility stage of the project, the management assembled and commissioned a complete set of professional consultants, comprising the Project Manager, Architect, Quantity Surveyor, Structural engineer and Electrical/Mechanical Engineer and the Architect was sponsored to the United states of America to study the contemporary edifices in New York with the view to replicating the selected design in the Owerri capital city of Nigeria. The Architect came back and developed a fabulous design for a 15-storey office plaza complex. Things began to take a negative turn on the project when the MD/CEO that conceived the project left the bank in late 1991 and the Board was also dissolved by the then newly inaugurated Executive Governor of Imo State. A new MD/CEO was appointed and the government did not reconstitute the dissolved Board all through 1992 and largerpart of 1993, hence the newly appointed MD/CEO more or less operated as a sole administration of the Bank for close to two years.

With the dwindling fortunes of the bank which followed soon afterwards, the plaza project's scope was scaled down to twelve storeys and subsequently to the current eight floors with a pent house mezzanine at which it was eventually abandoned in 1995 when CBN/NDIC took over the bank. With the reduction in scope which was effected in 1992, the original foundation of cellular raft with piles and basement with retaining walls was changed to thick solid raft foundation with the basement and retaining wall still in place. As a result of the failure of the consultant project manager who also doubled as the consultant QS to get the change in foundation quickly reflected in the design with the revised drawings produced so as to prepare a revised BOQ to enable the contractor and the client sign an updated and revised contract for the project, both the contract sum and the contract period for the project remained at large from 1992 to 1995 courtesy of the QS/Project Management consultant. The remote reason for this was that the project manager in the consultancy agreement he signed with the bank indicated a clause to the effect that the

project management fees was due for the original contract period of about thirty three (33) weeks and that at the expiration of that, after the project manager would have collected all his fees and he would begin to earn additional fees on pro-rata basis and the consequence was that while the contract period remained at large and inconclusive, the project management fee was protracted ad-infinitum.

The QS who also doubled as the project manager insisted that because of the change in foundation, the project had become a measure and value contract and interim valuation was done progressively for interim certificates while the purported design was in progress (that is indefinitely), hence there was no need to produce a revised BOQ for a revised contract between the contractor and the bank. The main contractor, a Lebanese company consequently had a field day, capitalising on this loopholes to make all kinds of claims which were recommended and paid for by the consultant QS/Project manager indiscriminately. By the time CBN/NDIC took over the bank in 1995, a staggering sum of about N150Million (hundreds of billions if not trillions using today's exchange rate) had been sunk into the project. Meanwhile, at the inception of this project, the PBN Property Department was manned and controlled by the Estate Surveyors who were the ones supervising both the Head Office Plaza Project and the Owerri Regional project. Meanwhile, the author who was the only matured and relevant construction professional in the system then was recruited and sent to Kaduna to man the Northern Sector Property and Administration Unit (involving property rentals, tenancy arrangements and minor adaptation contracts) with OND holders in QS retained at the head office as support staff to the Estate Surveyors, preparing cut and join BOQs for them. When the sector system in the bank was abolished with the author transferred from Kaduna to the head office in Owerri, the QS/ Project Manager who was very comfortable with the professional structure of the property department before then vehemently opposed the involvement of the author as a QS in the head office project in preference for the Estate Surveyors. He remotely incited the professional conflict in the bank's property department that nearly set the entire bank on fire. The bank's management all along acted in ignorance but when they realised the truth and insisted that the author should be the one incharge of the project, the QS/Project manager in connivance with the other consultants and the main contractor made the project, the department and the bank worst than a hell for the author, and the author survived the entire episodes alive due to God's divine ordination over his life that no weapon formed against him in this life will ever prosper. It was during this period that the author made the various observations that were stated above and if everything that transpired in this project should be written down, the resultant book will run into several volumes. Let it be known that this project and the widespread mismanagement that went with it was the main reason why the CBN/NDIC took over the bank.

The original plan of the founding fathers of the head office plaza project was to source it funds through the capital market which stands out as the cheapest source of funds for long term capital projects for

public quoted companies, but unfortunately, with the sudden change in management almost at the inception of the project, the whole story changed. The inexperienced management that took over sunk large proportion of depositors funds which is supposed to be classified as liquid assets into this long term capital project without adequate control mechanism put in place to ensure it's prudent management and timely completion. In concluding, this episode, given the main focus and objective of this paper, the author wish to state categorically that even though the QS is the most competent and qualified among all construction professionals to be appointed as consultant project manager for a construction project, it is suicidal to appoint the same QS for project management and QS consultancy services in the same project. It can be likened to appointing the same person as an accountant and an auditor for the same organization at the same time.

UNDER UTILIZATION OF BOQ AND THE QUANTITY SURVEYING PROFESSION IN NIGERIA

1. Non involvement of the Quantity Surveyor in most construction projects in Nigeria

The QS plays very critical role in any building and civil engineering project and there is hardly any project that can be successfully executed without the involvement of the QS, his BOQ and his indispensable professional competences and inputs already described above.

The competences of the QS which are critical and indispensable in any construction project include – Construction Cost Management which involves the calculation and determination of the total cost of the project usually incorporated in the BOQ; Construction Project Procurement Management which begins with the entire process of contract documentation and BOQ, pre-qualification of contractors and the tendering processes and the preparation of tender analysis/report on the submitted tenders; Construction Contract Drafting which involves the preparation of the articles of agreement and contract recitals incorporated in the BOQ, assessment and determination of the most suitable standard form of contract for any particular project and incorporation of the conditions of contract in the BOQ before the contract is signed by the parties as well as guiding the parties (the client and contractor) when signing the contract. The QS is the clients' legal contractual draftsman in any construction project and with his specialist training in construction contract law and arbitration, he is the most qualified professional in the construction industry to play the role of construction contractual adviser to the client and the entire stakeholders of the construction industry. Next in the QS core competencies is Construction Contract Management/Contract administration. Contract administration is all about a clear understanding of the various clauses of standard forms of contract and the ability to apply that in the adjudication of any kind of dispute that might arise during the execution of the project and that is the same reason why the QS as a trained arbitrator is the most competent professional in the construction industry qualified to play the role of an arbitrator in dispute resolutions in the construction projects.

2. Non involvement of the QS in Civil Engineering/Road Projects in Nigeria:

In civil engineering projects in Nigeria like roads in particular, the engineer does the design, costing, financial administration, supervisions, certification and payments all alone without the necessary checks and balances. They invented what they call BEME (Bill of Engineering Measurement according to them) as against the BOQ which is used all over the world for all civil engineering and road projects. Note that this so called BEME produced by the Engineers is usually full of provisional sums and lump sums and at best approximate quantities as against the comprehensive, detailed and accurate work item measurements of the BOQ which gives a more accurate cost of the road projects. Note that this BEME is not used in any other part of the world except Nigeria. The consequence is that the cost of road projects in Nigeria is more than five times the actual cost globally.

The QS is the only professional all over the world trained in the act of measurement, costing, preparation of BOQ, financial management and contract administration for all construction projects whether building, civil or industrial engineering projects.

The former Governor of Kaduna State, Mallam El-Rufai (a Chartered Quantity Surveyor) during his tenure used Quantity Surveyors for costing, BOQ preparation and financial management of all road construction projects in Kaduna state and was able to establish that unit cost of road projects were reduced by more than 500%. The truth is that the magnitude of corruption going on in road projects in Nigeria is more than five times the aggregate corruption a typical politician is accused of in Nigeria and if Nigeria is serious about catching up with other nations of the world on sustainable infrastructure development, a drastic decision has to be taken at both state and federal government levels on the use of the QS in the cost management of all infrastructure project in Nigeria as is practiced all over the world.

The engineers argued that the QS should not measure and prepare BQO for road projects because they don't understand the intricacies of the design of road work. This is a big lie because road project design and drawings are much more simpler and elementary compared to the very complex skyscrapers and other industrial buildings designs which the QS easily interpret and prepared BOQ over the years. For instance, I can easily come up with a cross section of a typical road design from the top of the surfacing down to the sub-grade and use that to teach even a layman in construction every nitty gritty of the components of a typical road work within a matter of minutes but that is not possible with a typical building project. Even at that, why is it only in Nigeria according to the engineers that the QS cannot interpret road drawings? And the QS all over the world interpret and prepare BOQ for road projects with a lot of ease. Are Nigerian Quantity Surveyors inferior to their counterparts around the world?

PROJECTED MODEL FOR POTENTIALLY VIABLE QUANTITY SURVEYING PROFESSIONAL PRACTICE IN CONTEMPORARY TIMES

Below are Key Skills, Qualities and Qualifications required for sustained success in QS professional practice in contemporary times. A good Quantity Surveyor should possess traits that set him apart from the average. These attributes don't exist by accident or luck; they must be cultivated and integrated into your daily habits to ensure optimal yield. They are as follows:

1. Communication

The profound ability to articulate clearly and concisely is among the most important duties of a quantity surveyor. Communication between relevant parties is crucial for successful project delivery. Miscommunication is typically a contributing factor to an elongated project and wasted expenditure

2. Numeracy & finances

The QS needs to manage and optimize project costs to ensure that the client or contractor gets the best return from their investment. To do so, they need to rapidly calculate and analyze figures to identify patterns and trends that will help to make the best cost optimization possible. Paired with that, a good QS needs to have a basic knowledge of finances to generate financial construction reports where numbers are looked at from a strategic and legal point of view. This is one of the most important quantity surveyor traits.

3. Data-driven mind

The ability to interpret and analyze data has become a core skill for quantity surveyors. A QS is traditionally adept at gathering his own data, but we're now seeing significant consultancies using historical project data to their advantage. On large projects, accumulated data can be used to make robust predictions that lead to shortened building duration, reduced costs, and improved building quality.

4. Critical Thinking

Another important quantity surveyor qualifications is having critical thinking and applying it to decision-making at crunch time. Being responsive is a crucial feat in acquiring and retaining clients. Your clients must be reassured that any issues will be resolved immediately before they enter the terminal stage.

5. Technology-driven

If you ever worked in a modern construction environment, you know that using innovative technology and software is a part of everyday work. Without the right construction software solutions, the efficiency and quality of a project would not be the same. As a QS, you'll need to be able to manage these technologies and use them to your advantage to be more efficient and accurate. Being technologically savvy will give you a competitive advantage, as delivery times are faster and errors are mitigated.

6. Attentive to detail (Meticulous)

The next requirement on our list of quantity surveyor skills is having an eye for details. Being industriously attentive to detail enhances accuracy and reduces errors. This reflects strongly on you and

your company image, conclusively influencing the customer experience. As the saying goes, it takes years to build a good reputation but just seconds to destroy it.

7. Composure (Working under pressure)

One of the duties of a quantity surveyor is meeting deadlines every day. Typically, a QS won't have the luxury of working on one project at a time. Duty calls, and you will likely be juggling multiple projects simultaneously. Being composed and able to work under pressure permits you to tackle your work in prime condition, ensuring that tasks are completed without compromising company standards. Being composed includes efficiently prioritizing and evaluating your tasks concurrently, showing commitment at every stage of your work, and ultimately, giving an underlying quality of perseverance.

8. Negotiation skills

One of the responsibilities of a quantity surveyor in construction is to manage different types of construction contracts and secure the best deal for your employer. To do so, you need to have excellent negotiation skills. This skill is often acquired with experience; however, if you come to a negotiation confidently and know what value you bring to the table, you can secure a fair deal for the project. Once you become good at it, it will boost your profile and make you a more complete and sought-after quantity surveyor.

9. Traditional industry knowledge

Manual measurement techniques, which were once the bedrock of quantity surveying, are not so common anymore, yet these fundamental skills must continue to be fostered. Paper plans, scale rulers, and highlighters still have their place in a modern QS repertoire. Manual measurement is often required at early project planning stages to establish feasibility or validate results at different points in the process. It's essential that these techniques do not become a lost art, as they can be a useful supplement to modern quantity surveying software, provide much-needed context to digital estimating processes, and may be helpful when collaborating with experienced surveyors.

10. Organized

Quantity Surveyors must keep up with all figures, data, and paperwork to give timely recommendations. You will need to whip out information instantaneously if you want to stay on top. A QS needs to organize work so that productivity is maximized. Today, quantity surveyors play an increasingly significant part in project decision-making, so being organized should be part of your *modus operandi*.

11. Humility

Humility is about knowing your limits and having the poise to welcome the strengths and perspectives of the people around you. Working within such a dynamic market landscape, embracing new knowledge, technology, and skills is vital. Yet, humility may be the most challenging talent to acquire simply because we fear it while seeking it – everyone wants to be humble and not be humbled. One of the best ways to think about this is not to think less of yourself but to think of yourself less..

12. Ethical conduct

Conducting oneself according to solid moral principles is one of the vital qualities of a quantity surveyor, considering the broad range of stakeholders involved and the responsibility to the public. In an industry striving to boost productivity and unlock its potential, everyone involved in a project must pull in the same direction.

The Royal Institution of Chartered Surveyors (RICS) sets out five ethical standards that RICS professionals worldwide must adhere to, namely:

- ▷ Act with integrity
- ▷ Always provide a high standard of service
- ▷ Act in a way that promotes trust in the profession
- ▷ Treat others with respect
- ▷ Take responsibility

13. Team Orientated

Being a QS means polishing not only your numeracy skills but also your team-building skills. Like any other job, teamwork delivers enhanced performance beyond the sheer sum of its members' single contributions – also known as the synergy effect. With loads of construction documents to handle, such as contract conditions, BOQs, tender schedules, subcontractor inquiries, and construction drawings, great teamwork facilitates delegating duties according to individuals' strengths and weaknesses. This way, weaknesses can be minimized while leveraging strengths for improved efficiency and productivity.

CONCLUSION

This paper which was focussed on Quantity Surveying documentation standardisation and expert practice model has comprehensively reviewed the various competences of the Quantity Surveyor, construction project procurement routes and systems as well as the bills of quantities, its contents, uses, abuse and

underutilisation, with the view to ascertaining the relevance of BOQ in the construction industry today and in the future, with a number of case study projects fully analysed. The study revealed that the BOQ remains the most indispensable contract document for cost management, procurement management, contract management and financial administration of buildings and infrastructure projects in the construction industry and concluded that the abuse and underutilization of the BOQ remains the bane and albatross of the Quantity Surveying profession in the Nigerian construction industry. Recommendations on the strategies and skills needed by the Quantity Surveyors in other to remain relevant in the construction industry were also clearly highlighted.

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