



SHAPING THE FUTURE OF QUANTITY SURVEYING PROFESSION

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- ***The journey so far***
- ***Expectation- Future of the profession***

A PAPER DELIVERED AT THE 2022 NATIONAL ASSEMBLY
OF REGISTERED QUANTITY SURVEYORS

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OUTLINE

1. INTRODUCTION

2. JOURNEY SO FAR/CHANGE

3. THE FUTURE





INTRODUCTION

"The quantity surveyor is dead – long live the quantity surveyor – masters of the process!" (Duncan Cartlidge)

RELENTLESS SEARCH FOR IDENTITY

CONCEPTUAL CLARIFICATIONS OF TITLES

- Building economist
- Construction economist
- Construction cost consultant
- Cost engineers



SURVIVAL OF CHANGES FROM:

- The wider economic and political environment
- Client led initiatives
- Within the industry
- Within the profession



THE QUANTITY SURVEYOR TODAY

- Constantly having to rise to new challenges,
- Reinventing itself,
- Emerging from the role of capturing of data,
- Mastering the management of data, projects and processes,
- Expanding and pursuing growth in emerging markets on the global scene.





THE JOURNEY SO FAR

“If you don’t know where you are coming from, you probably don’t know where you are and may not know where you are going”

THE QUANTITY SURVEYOR: ORIGINS

- ✓ EVOLUTION OF THE LABOUR PROCESS IN CONSTRUCTION
- ✓ FROM MEASURE AND VALUE TO LUMP SUM OBTAINED THROUGH COMPETITION
- ✓ DIVISION OF LABOUR IN THE DESIGN AND MEASURING FUNCTIONS
- ✓ THE QUANTITY SURVEYOR IS BORN. THE PLACE OF ETHICS



THE JOURNEY SO FAR -THE QUANTITY SURVEYOR: ORIGINS

EVOLUTION OF THE LABOUR PROCESS IN CONSTRUCTION

- The master craftsman doing work in his own trade and employing only a small number of artisans
- The master craftsman undertaking responsibility for the construction of all parts of buildings but employing directly only workers in his own trade and contracting with other master craftsmen for the remainder.
- The builder (*often an architect or merchant*) erecting complete buildings on the basis of contracts with master craftsmen in various trades
- Master builder erecting complete buildings and employing a more or less *permanent and relatively large body of laborers and workmen in all principal building crafts*



THE JOURNEY SO FAR -THE QUANTITY SURVEYOR: ORIGINS

FROM MEASURE AND VALUE TO LUMP SUM OBTAINED THROUGH COMPETITION

- The war booms and the dominance of the master builder
- Discontent with Payment on a 'settlement by fair valuation based on measurement after completion of the works at prices certified as proper for each locality'
- Cost overruns and introduction of competitive bidding among master builders
- Challenge with potential of close association with particular builders since the architect also controlled the measurement for payment purposes



THE JOURNEY SO FAR -THE QUANTITY SURVEYOR: ORIGINS

DIVISION OF LABOUR IN THE DESIGN AND MEASURING FUNCTIONS

- The enquiry into of 1828 into the contract for the Buckingham palace for cost overrun.
- Declaration of all public works to be by competitive tendering for amounts to be determined in advance of construction
- Allegations of collusions against the architects and the builders demand for architects to be separated from the computation of estimates and the performance of the function of the measurer
- Formation of the RIBA in 1834 and the RICS in 1868
- Formalization of the roles of the architect, quantity surveyor and the clerk of works.



THE JOURNEY SO FAR -THE QUANTITY SURVEYOR: ORIGINS

THE QUANTITY SURVEYOR IS BORN. THE PLACE OF ETHICS

- Decline of the method of “Settlement by fair valuation based on measurement after completion of the works at prices certified as proper for each locality”
- Formal discontinuation in 1828 of the separate trades contracting system for “contracting in gross” for public works after the enquiry into the high cost of the construction of Buckingham Palace and Windsor Castle.
- Ethical issues in the labour process
- Need to forecast building cost before construction
- Market forces of competition



WINDS/DRIVERS OF CHANGE

- Changes in the economy
- Client demand for value for money – Client led
- Perception within the industry
- Imminence of change
- The profession and new client
- Expansion into new markets
- Information technology
- Wider societal concerns issues, climate change and sustainability



CHANGES IN THE ECONOMY

- Post World War boom fueled by the European Recovery Program dubbed the Marshall plan
- End of the “**Never had it so good**” in Britain era disappeared and in 1961, balance of payments problems forced government to introduce austerity program.
- National reassessment of efficiency, value for money and cost effectiveness focused attention on critical economic cost centers and naturally, construction was a target.
- Verdict of the performance of the industry

CHANGES IN THE ECONOMY

- Buildings in a high percentage of cases, over budget, over time and littered with defects.
- Procurement was based on a system devoid of the capability of contractors to analyze and refine design solutions.
- Forms of contract that promoted adversarial and conflict-ridden relationships between the various parties making the industry one of the most litigious.
- Procurement systems based upon competition and selection by lowest price and not value for money.
- Procurement routes and documentation and forms of contract in use leading to excess costs, suboptimal building quality and time delays.

THE JOURNEY SO FAR: WINDS OF CHANGE

CLIENT DEMAND FOR VALUE FOR MONEY - CLIENT LED

- The UK government has been active in the review of the performance of it's industry. Results of such panels of enquiry and investigations are as follows:
- The Banwell Report of 1964
- The Wood Report 1975 The Public Client and the construction Industries
- The Latham Report , 1994
- Egan Report Rethinking Construction, 1998
- Be Valuable, Construction Excellence, 2005
- Construction Excellence, 2008
- Construction Strategy, 2011
- Construction 2025, 2013
- **COMPARE THIS WITH THE CASE OF NIGERIA**



CLIENT DEMAND FOR VALUE FOR MONEY - CLIENT LED

- Assessment of Clients of the construction Industry:
 - Inefficient,
 - Dysfunctional and lacking in integration
 - Providing poor value for money



PERCEPTION WITHIN THE INDUSTRY

- Within the construction industry were resented and seen as:
 - Inferior.
 - Perceived to add nothing to the construction process and
 - Failed to offer services which clients expected.



IMMINENCE OF CHANGE

- Declaration of the arrangement that gave birth to QS role in the procurement process was as flawed.
- Clamor for changes in the arrangement would come new roles for the quantity surveyor.



THE PROFESSION AND NEW CLIENT

- Changing workload for professional Firms
 - Fee competition and compulsory competitive tendering
 - Bankruptcies, mergers and acquisitions
 - The emergence of a new type of construction client and change in procurement objectives.
- “This new breed of client was, as the RICS had predicted in its 1971 report on the future of quantity surveying, becoming more knowledgeable about the construction process, and such clients were not prepared to sit on their hands while the industry continued to underperform “

THE PROFESSION AND NEW CLIENTS

- The 2001 National Audit Office report in the UK suggested that the emphasis on selecting the lowest price is a significant contributory factor in the tendency towards adversarial relationships. Attempting to win contracts under the 'lowest price wins' mentality leads firms to price work unrealistically low and then seek to recoup their profit margins through contract variations arising from, for example, design changes and other claims leading to disputes and litigation.
- Compulsory Competitive Tendering would be replaced with a system of Best Value for an efficient, imaginative and realistic system of public sector procurement'. In the UK, Legislation was passed in 1999, making it a statutory duty in the public sector to obtain best value.

EXPANSION INTO NEW MARKETS

- From Mergers and Acquisitions and New Forms of Procurement,
- The range of activities and sectors where the quantity surveyor is active became more and more diverse.
- The small practice concentrating on traditional pre- and post-contract services is still alive and well,
- however, at the other end of the spectrum, the larger practices are now rebadged as international consulting practices.

EXPANSION INTO NEW MARKETS

- ACADIS on who we are on their web site states:

... “ACADIS is the world’s leading company delivering sustainable design, engineering and consultancy solution for natural and built assets.

We are more than 29,000 people in over 70 countries dedicated to improving quality of life. Cost and commercial management is listed under their expertise”.....

EXPANSION INTO NEW MARKETS

INFRASTRUCTURE

- Building vs Infrastructure: Clarifications.
- Classifications
 - Energy (utilities, renewable sources and nuclear);
 - Transport: including road, rail, aviation and ports.
 - Mining and resources;

THE JOURNEY SO FAR : WINDS OF CHANGE

EXPANSION INTO NEW MARKETS

INFRASTRUCTURE

- Institute of civil engineers began in 1818 as canal contractors and surveyors.
- The measure and value system of the management of cost in the procurement of engineering infrastructure did not come to a head like it did in the procurement of buildings.
- The measurer did not emerge as a distinct profession and role.



EXPANSION INTO NEW MARKETS

INFRASTRUCTURE

- Working knowledge of the work procedure and method statement in civil engineering works and the process flow in mechanical installations.
- Route to entry is easier through certification for specific skills like QAQC, planning and Document control
- In the oil and gas quantification is carried out at the resource level, man hour values for manpower and estimates for engineering consultancy work is based on Cost Resource Time (CRT) schedules
- Other Competencies where quantity surveyors would thrive would be in:
 - Project planning which is driven by software like Primavera/Prince 2/Microsoft Project
 - Manning the gate as Document Controller for the management of project information is also another area where the quantity surveyor as masters of the process will thrive.



EXPANSION INTO NEW MARKETS

INFRASTRUCTURE

- Quantity surveyors are often referred to as cost engineers, when they are engaged in infrastructural works.
- Services provided will include the same provided in connection with the built environment like preparation of cost estimates; tender documentation and pre and post pre- and post-contract administration.
- Difference would of course be the standards, forms and other documentation used for the management of the processes.



INFORMATION TECHNOLOGY

- As measurers and information managers, quantity surveyors will always be greatly affected by information technology.
- Digitization of building data and information.
- Most radical : **BIM (Building Information Modeling)**

BIM dawned in 2016 in the industry. In order to facilitate the introduction of BIM into the UK construction industry, the process was broken down into levels and in 2011, **The UK government, made Level 2 BIM mandatory in all public sector contracts by March 2016.**

INFORMATION TECHNOLOGY

- BIM uses, a proprietary software to create a comprehensive 3D model which assessable by all members of the team with all architectural, structural, mechanical, electrical, fire safety information in layers with the advantages that:
 - Clashes between different elements can be detected and eliminated;
 - Alternatives can be investigated;
 - Quantities can be generated

In addition, the following information can be loaded on to the model:

- Operation and maintenance and life cycle data;
- Health and safety details.

INFORMATION TECHNOLOGY

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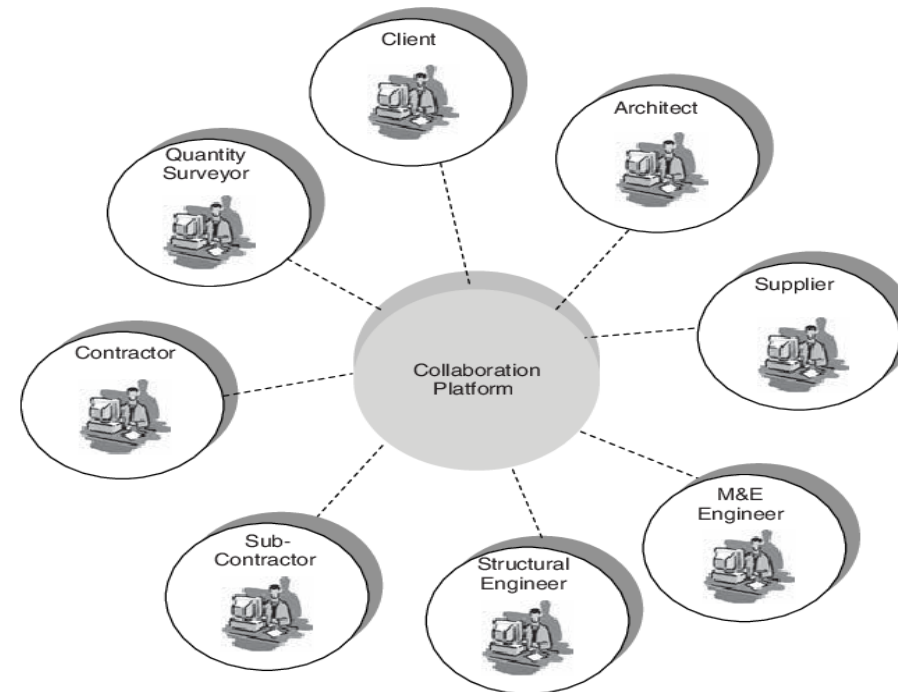
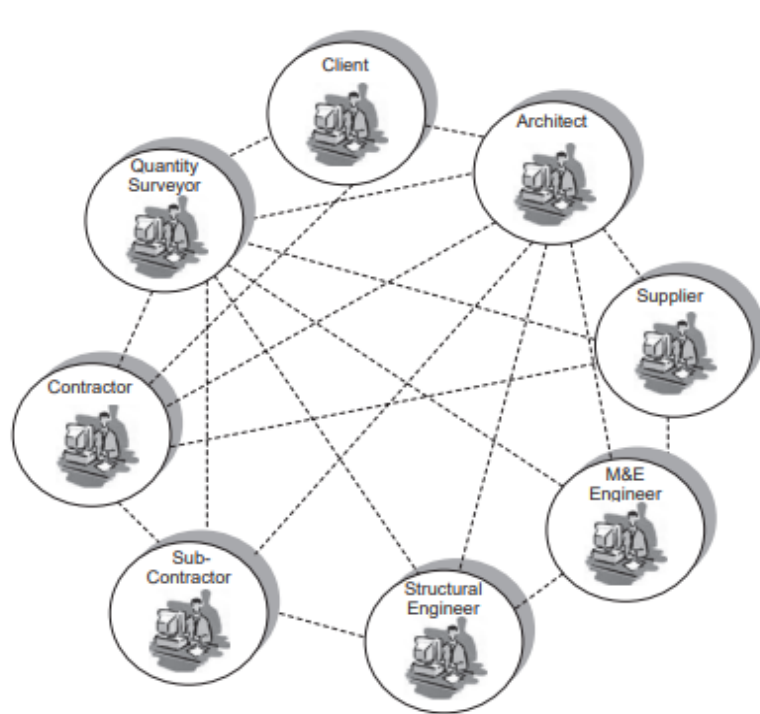
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INFORMATION TECHNOLOGY

BIM is above all an IT-based system that allows greater collaboration between everyone involved with the project at all stages in its pre- and post-contract as well as operational life. (Duncan Cartlidge, 2018)



INFORMATION TECHNOLOGY

BIM AND THE QUANTITY SURVEYOR

- 4D BIM progressed the 3-D model further by overlapping the construction program with the model allowing a visual representation of the project being built. The Quantity Surveyor is able to see roughly where the project should be at different timelines for valuation purposes.
- 5-D BIM facilitates the ability to insert cost information into the 3-D model. This also correlates with 4-D BIM to automatically prepare monthly valuations, cash flow forecasts for clients, cost reporting on a project etc.

JOURNEY SO FAR: WINDS OF CHANGE

INFORMATION TECHNOLOGY

WILL BIM HERALD THE DEATH OF THE QUANTITY SURVEYOR?

No! It will rather enhance the quantity surveying profession. It will enhance both our capacity for data capture and data management.

- The ability of BIM models to automatically generate quantities and cost estimates does not lessen the need for an expert to interpret the vast amounts of data produced, or to distil it into a form that clients, contractors and sub-contractors can use to make informed decisions, just as in the past they have been used to interpret drawings.
- It is clear however that firms that do not embrace this technology changes will lose relevance.



INFORMATION TECHNOLOGY

ARTIFICIAL INTELLIGENCE/BIG DATA/VIRTUAL REALITY & WALK THROUGH/DIGITAL TWINS

- Artificial intelligence (AI) comes from machine learning to imitate human intelligence. With the arrival of big data and data analytics the computer can learn how to respond to certain actions. It uses algorithms and historical data to create what is referred to as a propensity model to make predictions based on previous actions to carry out tasks with extreme accuracy.
- AI' could potentially automatically carry out a take off of materials with accurate descriptions in a Bill of Quantities, or perhaps be used to automatically highlight problems on jobs before they arise using historical data. The possibilities with Artificial Intelligence appear truly limitless.
- Technological advancement in virtual reality with the opportunity to conduct a digital walk through of buildings before they are built and it is now possible to create “digital twins” of buildings.

JOURNEY SO FAR: WINDS OF CHANGE

CLIMATE CHANGE AND SUSTAINABILITY

- Societal demand for greener products; COP26.
- Links between the market value of a building and its green features and related performance.
- Construction clients are also increasingly recognizing the marketing potential of green issues in buildings. Green buildings use less energy and water as well as other resources and materials with better life cycle costs.
- Contribution of QS to recommendation of alternative specifications of products that deliver the most carbon efficient project under budget.



THE FUTURE



RELENTLESSNESS OF CHANGE

- Place of construction in national Economy
 - ✓ Vulnerability of the Construction Industry to economic changes
- Constant demand from clients for value for money
- Impact of advancement in information technology in data capture and data management functions
- Societal demands for sustainability

THE FUTURE: RELENTLESSNESS OF CHANGE

RICS FUTURES, 2015, OUR CHANGING WORLD: LET'S BE READY

According to the document, the issues and debates that will continue into the future shall be

- whether the future industry will demand specialists or generalists.
- mergers and acquisitions and entry into organizations providing services to a multitude of industries and trend towards interdisciplinary working.
- expansion into new markets and playing on the global scene,
- emphasis on ethical practice, as well as a recognition that
- the profession must embrace new and emerging technologies, such as BIM



RESILIENCE OF THE QUANTITY SURVEYOR

- Perhaps more than any other construction profession, quantity surveying has repeatedly demonstrated the ability to reinvent itself and adapt to change.
- Quantity Surveyors are the only professionals with transferable skills for the systematic management of the procurement of capital assets.

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THANK YOU
FOR LISTENING

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