

**HOW HUMAN NEEDS, TECHNOLOGY, AND COLLABORATION WILL SHAPE
THE FUTURE OF THE QUANTITY SURVEYING PROFESSION**

AYODELE FALEYE

Dip (QS), BSc (QS), MSc (PM), MNIQS, RQS, PMP.

PRINCIPAL PARTNER

Samprec Consultants Ltd
Plot 1952, Sokode Cresecent, Off Dalaba Street,
Wuse Zone 5, Abuja.
Tel: +2348065577580
Email: info@sampreconsultants.com
Website: www.sampreconsultants.com

SENIOR QUANTITY SURVEYOR

United Nations Organization for Project Services (UNOPS)
Ghana Multi-Country Office (GMCO).
Email: ayodelefa@unops.org
Website: www.unops.org

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1.0 BACKGROUND

1.1 Introduction

Professionals and business organizations exist to solve market friction and increase values for stakeholders, the parties interact in an environment that is unstable and increasingly dynamic. Technology, geopolitics, global regulations, and government policies all contribute to the dynamism of every market. The construction industry or more specific quantity surveying profession are not shielded from these forces and to maintain competitiveness and long-term relevance, stakeholders must use combined efforts to forecast the future. It was rightly captured by (RICS, 2020), ‘Major global events, such as the recent coronavirus pandemic, show how risks and uncertainty dramatically play into projects. While these major events are not always foreseeable, systematic processes and skilled professionals provide the best chance of adequately managing their occurrence’. Projects that we manage are uncertain, so the clients and markets we operate are dynamic. This paper addresses how human needs, technology & collaboration will shape the future of the quantity surveying profession, it explores factors that drive projects initiation, elements of change in the quantity surveying profession, and from the author’s perspective responses expected from regulatory and professional bodies, and most importantly the quantity surveyors.

1.2 Quantity Surveying

It is important to put the profession of quantity surveying in perspective before establishing what represents a quantity surveying firm. The quantity surveying profession has been defined by many authors differently; ‘Quantity surveying is the profession that is concerned with financial probity and achieving value for money in the conceptualization, planning, and execution of building and engineering projects and developments’ as defined by the Nigerian Institute of Quantity Surveyors, cited by Oyedele (2019). According to Ajanlekoko (2004), ‘quantity surveying is a profession that deals with cost, quantities, and procurement of construction and infrastructure works, right from schemes in prospect, through schemes in progress to schemes, to use; total cost and procurement management.

1.3 Quantity Surveying Firms

Quantity-surveying firms’ scope of work covers residential, commercial, industrial, leisure, agricultural, and retail projects and the provision of infrastructure (Olawumi and Ayegun 2016).

Quantity-surveying firms provide several essential services to clients (basically regarding engagement). These include preliminary cost advice, advising on contractor selection, obtaining or negotiating tenders/bids, valuing construction works, preparation of taxation and insurance documents, feasibility studies, technical auditing, cost control, post-contract management, project control, and risk management. Furthermore, essential services provided by QS firms also include expert advice, security management, investment appraisals (Olatunji, Olawumi, and Aje, 2017).

2.0 DRIVERS OF PROJECTS--GLOBAL CHALLENGES

There are promising opportunities for construction and real estate practitioners and many of which are caused based on environmental, social, economic requirements. The global challenges as captured in the sustainable development goals (SDG) are indicators of opportunities for us as professionals. The SDG goals that are cardinal to the quantity surveying profession and QS practitioners are:

Goal Six: Ensure availability and sustainable management of water and sanitation for all; **Goal Nine:** Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation; **Goal Eleven:** Make cities and human settlements inclusive, safe, resilient, and sustainable; **Goal Fifteen:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.

Beyond the general SDG goals that are directly affecting the construction industry, the under-listed are key drivers of project initiation and if Quantity Surveyors are rightly positioned would become key players.

2.1 Climate change

In Africa, climate change impacts sustainable development, and this includes impacts on agriculture, water resources, public health, human settlement. The bulk of agricultural systems is climate-dependent, with, for example, most sub-Sahara rely primarily on rain-fed agriculture. In water, for instance, Africa's water resources have been decreasing over time mainly as a result of persistent droughts and land-use patterns. Climate change will exemplify this situation. Climate change has affected human settlement, sea-level rise due to climate change will shift coastal boundaries backward forcing people to migrate and destroying infrastructure, fauna, and flora, (UNEP, 2006).

2.2 Housing and Infrastructure deficit

It has been argued that access to quality and affordable housing is one of the fundamental needs and human rights that is crucial to achieving several social policy objectives, including reducing poverty, enhancing the standard of living, and social inclusion (Bonkat and Ganiyu, 2020). The right to adequate housing that is safe, secure, healthy, available, and inexpensive is enshrined in the Habitat Agenda to provide adequate shelter for all (Habitat, 2014). According to Pison Housing Company (2010), there are about 10.7 million houses in Nigeria, irrespective of the policies, organizations, and regulations which the Nigerian government has put in place since independence in 1960, there is still a shortage of housing, especially for the low-income segment of the society. This problem is still imminent as Daniel (2015) argued that the government agreed that we have 17 million housing deficits. In the infrastructure sector, there is an imminent shortage of roads, data infrastructures, water, and power facilities. This problem was further proclaimed through the G20 Guidelines on Quality infrastructure for regional connectivity (G20, 2020). Due to the importance of infrastructure to global development, G20 leaders formulated *G20 principles for quality infrastructure investment (QII)*. It was rightly captured, ‘infrastructure is a driver of economic prosperity and provides a solid basis for strong, sustainable, balanced and inclusive growth and sustainable development, which are the key goals of the G20 and critical for promoting global, national and local development priorities’.

2.2 Population growth

The problem of the rising population requires well-coordinated and dynamic policies. Projections indicate that by 2030 Africa’s population will exceed that of Europe, South and North America combined. There are equally forecasts for Africa which indicates that average densities will increase from 34 to 79 persons per square kilometer between 2010 and 2050 (UN Habitat, 2014). More population means more housing and better spatial planning that increases the quality of life and human habitat. These indices without doubt provide immense opportunities for built environment professionals, not only the quantity surveyors.

3.0 DRIVERS OF CHANGE TO QS PROFESSION

3.1 Global financial system and development policies

Subjects like procurement and procurement rating, credit rating, PPP maturity level, Organization Project Maturity (OPM) model, and many demands of institutional investors affect how projects are being procured, constructed, and delivered across markets. In recent times, major development institutions and key institutional investors have played a major role in

defining how construction and infrastructure investments are conceived. For instance, the World Bank Group (WBG) finance and advice on a multi-billion dollars portfolio of projects globally and its policies have shaped procurements activities in many markets. By training, quantity surveyors are experts in procurement management but this is not recognized by institutions like the world bank group or International Monetary Funds, or even regional institutions like Africa Development Bank. WBG influenced the government of Nigeria's framework on public procurement policies in Nigeria, the efforts culminated in the enactment of the Public Procurement Act 2007 (PPA, 2007). Presently, the legitimacy of quantity surveyors as experts trained in total procurement of management of built assets is weakened, and we are in the race again struggling for relevancy. Equally, key players in infrastructure investment are defining the skillsets needed and have established knowledge gaps, and this informed the formation of different learning and development programs like WBG Open Campus, APMG Certification, Amazon WBS. We must understand that those that fund projects are critical stakeholders in the construction value chain and they must be monitored and their interest tracked.

3.2 Technological disruptions (Modelling, Quantification, and Costing Software)

The optimal use of Information and Communication Technology (ICT) should be considered to be an essential requirement for achieving international best practices and competitiveness and ensuring long-term business prosperity (Babatope, Awojobi, & Itanola, 2021). According to Babatope *et al* (2021), disruptive technologies to quantity surveying practices are grouped under data analytics and construction, blockchain construction finance, building information modeling (BIM), Artificial Intelligence (AI), and Robotics technologies. These forces would greatly impact the traditional quantity surveyors' roles and professional and regulatory institutions must be future-fit to be able to cope in the new market.

3.3 Changes in the construction ecosystem

The construction industry is the largest ecosystem in the world and disruption is shaping this sector without restriction. In 2017, the McKinsey Global Institute (MGI) highlighted that the construction industry needs to evolve and showed ways in which it can change to improve productivity by 50 to 60 percent and deliver \$1.6 trillion a year in incremental global value. The traditional construction procurement process that delineates roles for each professional, and quantity surveyors inclusive is going to change. The evolution in the construction ecosystem will

not leave any profession the same, and this means both the practitioners and academic orientation must change and align with the changes.

According to McKinsey & Company Report ‘*The next normal in construction*’ published in 2020, the report confirmed the trends and scenarios that surfaced by conducting a survey of 400 global industry leaders.

Among the report findings are the following:

- i. ***Construction is the biggest industry in the world, and yet, even outside of crises, it is not performing well.*** The ecosystem represents 13 percent of global GDP, but construction has seen a meager productivity growth of 1 percent annually for the past two decades.
- ii. ***Nine shifts will radically change the way construction projects are delivered—and similar industries have already undergone many of the shifts.*** A combination of sustainability requirements, cost pressure, skills scarcity, new materials, industrial approaches, digitalization, and a new breed of the player looks set to transform the value chain.
- iii. ***The COVID-19 crisis will accelerate change that has already started to occur at scale.*** Our research suggests that the industry will look radically different five to ten years from now. More than 75 percent of respondents to our executive survey agreed that the nine shifts are likely to occur, and more than 60 percent believe they are likely to occur at scale in the next five years.
- iv. ***A \$265 billion annual profit pool awaits disrupters.*** A value chain delivering approximately \$11 trillion of global value-added and \$1.5 trillion of global profit pools looks set for an overhaul. In a scenario based on analysis and expert interviews by asset class, strongly affected segments could have a staggering 40 to 45 percent of incumbent value added at risk, even when the economic fallout from COVID-19 abates—value that could shift to new activities such as off-site manufacturing, to customer surplus, or to new sources of profit
- v. ***To survive and thrive, incumbents must respond.*** All of the players in the construction value chain will need to develop their strategies for dealing with or leading disruption. This is especially true for engineering and design, materials distribution and logistics, general contracting, and specialized subcontracting, all of which are likely to face commoditization and declining shares of value for parts of their activities.
- vi. ***Investors are well-advised to use foresight on the respective shifts in their investment activity and will have ample opportunity to generate alpha.*** Policymakers should help the industry become more productive and achieve better housing and infrastructure outcomes for

citizens. And owners stand to benefit from better structures at lower cost if they play their part in making the shifts happen

It is the manifestation of these changes that triggered the invasion of professional boundaries manifested in an aberrant document like BEME and lack of patronage from public sector clients and major institutional investors and built assets managers. Years to come, these changes are going to be more compelling and quantity surveying profession, and by extension quantity surveyors must metamorphose to gain client confidence.

4.0 QUANTITY SURVEYORS' RESPONSE TO EMERGING CHANGES

The only constant factor of life is change and our responses to forces confronting us would determine the depth of our knowledge. The future of the profession and its competitiveness would be determined through our efforts today. In responding to the changes above, the under listed factors/responses are pivotal:

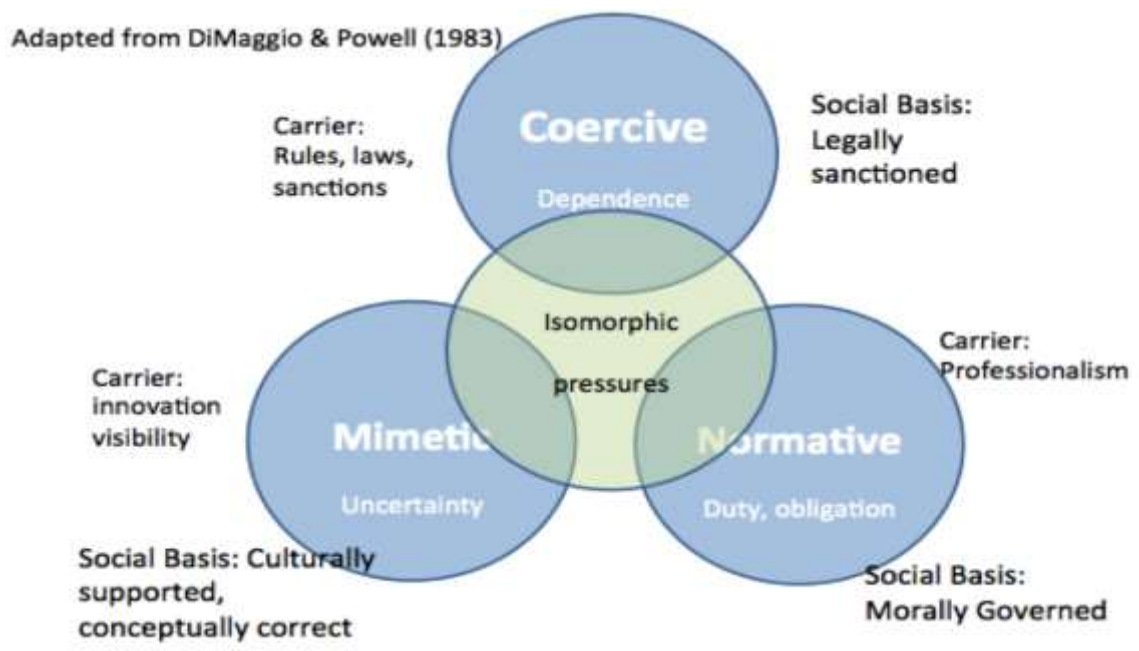
4.1 Data maximization for the improved professional judgment

According to the World Economic Forum Infrastructure 4.0 report, the procurement process for infrastructure development has often encouraged an adversarial atmosphere between partners, however, there is a need for digital disruption. Along the same line of argument, McKinsey & Company report *The next normal in construction* advanced conversation to support digitization in the procurement and construction of built assets. Quantity surveying firms of the future must be data ready, and embrace technological innovations like building information modeling (BIM), construction cost analytics, e-procurement, blockchain. We have a few quantity surveying firms already deploying strategic drives that favor technology; Rider Hunt International projecting their rhiPEMS and rhiCOMS, Altus Group transforming their services to provide digital products like ARGUS Enterprise, ARGUS Taliance, ARGUS Estate Master, ARGUS Developer. Turner and Townsend, and Rlb have both equally invested in the digital construction market index.

4.2 Rethinking our institutional framework

There are many works on institutional theory and how organizations develop legitimacy and sustainable relevance. Equally, some factors have affected the performance and efficiency of the Institute, the Board, and quantity surveying firms in Nigeria. According to DiMaggio & Powell (1983), isomorphic pressures affect institutional performance and bring homogeneity in identity.

Isomorphic pressures are categorized into coercive isomorphic pressure, mimetic isomorphic pressure, normative isomorphic pressure. The performance of the Institute and the Board can not be separated from these forces, and by extension, it impacts on internal organization performance. There are certain industry steps and discussions that can only be triggered by the professional body which individuals and firms can not do as a result of isomorphic pressures and organization strategies. Development and marketing of industry standards like BESMM4R, ICMS 2, Guidance Notes, Practice Management Guides is institutional responsibility that if not managed at the organization level, individuals would have fewer resources to do. For long-term performance, there may be a need to revisit the structures of both our professional and regulatory bodies for long-term impacts.



4.3 Market fitness of certifications

Town and gown must have a meeting point and this must mean the real overhauling of academic curriculum to meet market demands. The academic community needs to restructure after a careful study and the alignment of training with the market requirement. The Nigerian Institute of Quantity Surveyors (Institute) needs to reengineer the curriculum, and where possible the examination structure, this is equally obtainable in other institutions where professional organizations conduct role delineation study (RDS) and job description analysis (JDS) to develop a market-relevant assessment process for members.

4.4 Market Insight and thought leadership

The Institute must be the industry authority and leader of thought in cost management of all built assets in the country, and becoming a leader can only happen through a deliberate investment in research to understand the Nigerian housing and infrastructure market. Can we authoritatively speak about infrastructure cost and trend, regional cost indices, or sectoral housing analysis or insights? I think the answer is an affirmative NO now, the reason is that we have not invested in understanding the market. We must be deliberate in understanding the market we are operating and no one is better positioned to answer these questions.

4.5 Development of specialization

To take advantage of the changing market, the training and certification process should consider specialization and the development of a community of practice. Specialization should be considered and raise professionals that can serve as PPP Advisors, Infrastructure Specialists, PPP Financial Modelers, MEP Cost Managers, Property and Infrastructure Tax Specialists, Contract Specialists, Sustainability Professionals, Built Asset Procurement Professionals. The market of the future may not recognize the role of traditional quantity surveyors and it would be to our advantage to be positioned for a sustainable relevance.

4.6 Ethics must be at the centre of our conversation

We must side the society and our planet through a sound ethical framework, this must reflect on regulation that is fair to both young and senior professionals, old firms, and new market entrants. Ethics should be a separate and mandatory module for all candidates writing professional examinations, while registered members should be expected to demonstrate documented learning regarding ethical behavior periodically.

5.0 CONCLUSION

Sustainable institutional success is not by accident and the future is only going to be for those that are ready to embrace agility and change. Digital disruptions, climate change, population growth, and new urban agenda are going to shape the future of our profession, it is high time we recommit ourselves to a new drive and assignment to secure the future of the profession.

6.0 RECOMMENDATIONS

- i. The Institute should invest in market insight and NIQS Cost data bank should be used as a strong tool towards bringing market confidence.

- ii. The Institute should invest in research and articulate the distinctive nature of the procurement for built assets and project the need for only technically biased professionals like Quantity surveyors to manage the procurement process for construction and infrastructure projects.
- iii. In promoting transparency and efficiency in cost management of infrastructure, the Institute should collaborate with other regional and global institutions like the International Cost Engineering Council (ICEC) and Africa Association of Quantity Surveyors (AAQS) towards projecting standards like BESMM4(R), ICMS2, NRM to institutional investors and development agencies.
- iv. To become fit for purpose, the Quantity Surveyors Registration Board of Nigeria must rekindle its value proposition for members. There must be collaborative research projects with the Institute, and sometimes with other bodies within the built environment. The Board should propose the formation of the Nigerian Centre for Construction and Infrastructure Economics to cater to the needs of the industry.
- v. The NIQS Academy must be strengthened to be able to invest in IT infrastructure that provides self-paced online learning in specialized areas. This would equally help in the formation of a community of practice (special interest group) within the profession and thereby help in the improvement of our competitiveness.
- vi. Academic institutions must be aware of the need for the gown to meet with the town. In previous years we have emphasized the need for quantification at the expense of other core competencies, there is a need to conduct appropriate studies to establish the current market needs and market of the future to improve on our curriculum.
- vii. NIQS Foundation must collaborate with global bodies on public procurement, open data, and project tracking. Through the power of social enterprise, the foundation must be seen as part of the drivers for sustainable development and a platform for the eradication of corruption on construction projects. We must side our society and environment!
- viii. Quantity Surveyors should upskill and update their interactions with ICT to enable them to explore the vast untapped opportunities that are embedded in deploying Technologies in Nigerian construction. We need more programmers among quantity surveyors

ix. The fundamentals of the Nigerian Quantity Surveying education need to be reinvented to ensure the integration of technology-exploratory courses as part of the core curriculum in Tertiary institutions.

x. Construction Supply Chain perspective should be entrenched in the training of Quantity Surveyors to engender the mindset of value gap identification. When combined with pragmatic entrepreneurship training, more Quantity Surveyors can become investors and employers of labour through innovative value propositions.

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