

## EXPLORATORY INVESTIGATION OF CHALLENGES AND EXPECTATIONS OF INNOVATIVE QUANTITY SURVEYORS AND QUANTITY SURVEYING FIRMS IN GHANA

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### ABSTRACT

Like other professions that wish to remain competitive, the quantity surveying profession (QSP) will always find ways to improve its output and systems. Despite the QSPs progress in process innovation, the profession still faces some challenges and is overwhelmed by expectations that must be addressed to improve service. The purpose of this study is to identify the expectations and challenges of quantity surveyors and the QSP. Using an in-depth literature review and quantitative research approach, questionnaires were developed and administered to innovative quantity surveying (QS) firms in Ghana. After validating variables and checking the reliability of the scale, data analysis was carried out using descriptive statistics, cross-tabulation, and a relative importance index (RII). Findings showed that the quantity surveyors expect elimination of corruption from the industry and a high standard of transparency and accountability. The surveyors also desired enhance their skills to remain competitive and be more entrepreneurial and proactive. This study creates awareness for top managers and leaders in QS firms to identify and adopt innovative solutions to address the challenges of the industry and the expectations of individual quantity surveyors. Managing the expectations of quantity surveyors and the challenges of the QSP would help the QS industry remain competitive and lucrative. This paper makes an original contribution to the field by describing the challenges the QSP faces in the construction industry and providing theoretical views on the expectations of innovators.

**Keywords:** Challenges; Expectations; Ghana; Process innovation; Quantity surveying profession

### 1. INTRODUCTION

In order to remain competitive, firms must innovate, form new knowledge, move into other novel areas and create new niches (Harun & Abdullah, 2006; Barret et al., 2007; Owusu-Manu et al., 2014). Innovation in quantity surveying (QS) is defined as the management of knowledge and the capturing of project-based learning for future use (Hardie et al., 2005).

Throughout extant literature, the quality surveying profession (QSP) is seen as supporting innovation (Hardie et al., 2005), adapting and making changes to work output by adopting technologies, innovating management and monitoring processes, providing critical solutions,

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and putting new ideas into practice (Blayse & Manley, 2004; Owusu-Manu et al., 2014). Nevertheless, amidst the QS industry's efforts to innovate (Hardie et al., 2005), remain competitive and stay in business (Harun & Abdullah, 2006), the industry still faces some challenges and is overwhelmed by expectations they must meet to ensure that the QSP continues to prosper, with interest in the profession never higher (Cartlidge, 2011).

The QSP has existed for centuries, tracing its origins back to the antediluvian Egyptian civilization (Cartlidge, 2011; RICS, 2005). In the 17<sup>th</sup> century, the profession became an occupation with the advent of the first public contract (RICS, 2005). Between the 1950s and 1980s, the QSP was in its prime (Cartlidge, 2011; Ashworth et al., 2013): bills of quantities were preferred for tendering, and Royal Institute of Chartered Surveyors (RICS) fees were liberal and unchallenged (Cartlidge, 2011).

However, the success of the QSP was not without challenges (Shafiei & Said, 2008). During the latter part of the 20th century, clients led a crusade for leaner and more cost-effective projects that could be completed on time. This placed new demands on the profession (Cartlidge, 2011). This changing landscape of the construction industry required professionals to be proactive, innovative, competitive, and adaptive to the changes in their environment. This was spearheaded by the commercial revolution and the advent of new technologies, allowing professionals to survive in a meaningful and profitable way (Smith, 2004; Ofori, 2012; Ashworth et al., 2013).

Today, quantity surveyors are more receptive, having adjusted to new processes, cultivated new knowledge, developed new niches, and adopted new technologies. Their services are being sought in the building market economy and other fields, such as the oil and gas industries, petrochemical, manufacturing, aeronautical, rail networks, telecommunications, and power networks (Blayse & Manley, 2004; Smith, 2004; Cartlidge, 2006; Harun & Abdullah, 2006; Barrett et al., 2007; Owusu-Manu et al., 2014). The profession has changed from its original tasks of building quantification and bills of quantities preparation to more contemporary ones. These include facilities management, commercial management, development management, program management, value management, risk management, and cost advice (Goyal, 1991; Owusu-Manu et al., 2014).

Throughout literature, quantity surveyors appear as experts in process innovation (Smith, 2004; Hardie et al., 2005; Musa et al., 2010). Process innovation is the introduction of new elements, production measures, management methods, and skills into an organization's production or service operations. The aim of process innovation is to increase the efficiency and effectiveness of the internal organization processes, facilitating the production and delivery of goods or services to customers in order to achieve lower costs and higher product quality (Reichstein & Salter, 2006; Piening & Salge, 2015).

Despite the QSP's survival of past industry changes, the profession is not immune to threats in its operating environment (Shafiei & Said, 2008). New changes to QS practice include changes in procurement practices and clients' demands, advances in information and communications technology, the RICS Black Book and new rules of management, and building information modeling (BIM) (Smith, 2004; Ashworth et al., 2013). A study conducted by Olatunji et al. (2010) reported that BIM presents a major challenge to the conventional service of the QSP and may redefine the content and professional boundaries of the QS practice (see also Ashworth et al., 2013). Moreover, the quantity surveyor needs to be abreast with business financial management and the risks to businesses' survival that arise from increased competition due to globalization (Davis et al., 2007; Holt, 2013).

The changes in the industry will only continue to escalate (Smith, 2004); organizations in all fields are under increasing pressure to offer value-added services, innovate, and learn to survive

and grow in the face of increased competition and rapid change (Ofori, 2012). The QSP must be ready to address these changing times by improving their skills in information technology, improving their qualifications, and continuing to expand their current roles (Owusu-Manu et al., 2014). The profession must be bolder, more entrepreneurial, and more proactive (Smith, 2004; Brümmer, 2004). It should conduct robust continuing professional development programs and periodic examinations of its members (Owusu-Manu et al., 2014). Grant (2004) suggested that quantity surveyors diversify their domain of expertise and strengthen the bases of their strategic assets, such as education, training, experience, and knowledge. Consequently, there should be greater focus on how expertise in project procurement can be improved (Kumaraswamy & Dulaimi, 2001), and how the construction value chain can be made more efficient (Atkin, 1998). Also, there is the need to address the concerns of sustainable development, health, and safety in project delivery (Lingard & Rowlinson, 2006), and enhancing the level of professionalism in the construction industry (Vee & Skitmore, 2003). More so, the industry must learn how to transform the adversarial mindsets of practitioners, and promote collaborative approaches (Li et al., 2001). Subsequently, there is the need to eradicate corruption in the industry (Stansbury, 2005; Transparency International, 2006), and enhance the social image of construction (Rameezdeen, 2007); and, perhaps most importantly, how to attract, retain, and develop talent (Toor & Ofori, 2008b).

Identifying the challenges of the QSP and the expectations of individual quantity surveyors will not only help the profession be aware of its inhibiting factors but also facilitate identifying and adopting innovative solutions to the identified shortcomings. In this way, the QSP can remain competitive and profitable in the construction industry. However, not much has been done to examine the challenges and expectations of innovative QS firms. Therefore, this study aims to identify these challenges and expectations of innovative quantity surveyors and QS firms in Ghana.

## 2. METHODS

A quantitative research approach was used to obtain the requisite data for this study. Secondary data was elicited by reviewing relevant extant literature on the topic. Close-ended questionnaires were prepared based on variables identified in the literature to address the research aim, objective, and question. The questionnaire for this study had two parts: Part A was devoted to the demographic data of the respondents. Part B of the questionnaire focused on the objective of the study: identifying the challenges and expectations of the QS firms and individual quantity surveyors in the firms. The responses of each respondent were measured using a five-point Likert scale, ranging from strongly disagree to strongly agree.

For this study, the population was limited to quantity surveyors in Kumasi and Accra who were in good standing with the Ghana Institution of Surveyors as of December 2016. According to the Ghana Institution of Surveyors (2016), there were about 43 QS firms and 389 members in good standing. The members consisted of 39 fellows, 313 professionals, and 37 technicians. According to Ahadzie (2007), Accra and Kumasi are the centers of construction activities in Ghana, hence the choice of these two cities for use in this study. The Kish formula (popularly used in most empirical works, as seen in works of Bolstein and Crow (2008)) was used to obtain the sample size for the study: 80. Purposive and convenience sampling techniques were adopted for this study. Purposive sampling was used based upon a variety of criteria, including specialist knowledge of the research issue, experience or capacity, and willingness to participate in the research. Convenience sampling was also used to obtain responses from the experts who were readily available — for instance, subjects that arrived at the QS firms by coincidence.

The questionnaires were distributed to the top managers at the innovation champion QS firms and the individual quantity surveyors at these firms. Both groups were allowed to provide responses to the firm and individual perspective sections of the questionnaire because, being members of the firms, they should be able to discuss the challenges of the QSP, and as individuals in the firms, they should be able to discuss their expectations for the betterment of their service and output. After sending out 80 questionnaires, 68 of them were retrieved, representing a response rate of 85%. This was considered sufficient based on the avowal of Moser and Kalton (1979) that the result of a survey could be considered as biased and of little significance if the return rate was lower than 30% to 40%.

However, before analyzing the data, Cronbach's alpha coefficient test was used to check the internal consistency of the variables. According to Howland and Wedman (2004), for scales to be reliable, ideally, the Cronbach's alpha should exceed 0.700. After subjecting the data to Cronbach's alpha reliability test, the value obtained from the analysis was 0.825, justifying the reliability of the scale. The software used for this analysis were the Statistical Packages for Social Science (SPSS) Version 23 and Microsoft Excel 2016.

### 3. RESULTS AND DISCUSSION

#### 3.1. Characteristics of Respondents

Descriptive statistics of the demographic revealed that 54.4% of the respondents were junior quantity surveyors and probationers while 45.6% were senior quantity surveyors and managing directors. Most of the respondents worked in QS firms (89.7%) while the rest worked on their own (10.3%). To identify the challenges of the industry and provide information on worker expectations, it is prudent that the workers examined have been in the industry for a significant length of time. Analysis of the respondents' years of practice showed that 57.4% had been in the profession for 0 to 5 years while 42.6% had practiced for more than 5 years, some even exceeding 20 years. To validate our findings, we wanted to know if our target respondents were process innovation champions, to proceed to identify their challenges and expectations. Upon analysis, it was discovered that 91.2% of the respondents agreed that quantity surveyors are process innovation champions while 8.8% of the respondents agreed otherwise.

#### 3.2. Challenges of Innovating QS Firms

Based on the five-point Likert scale rating, a success criterion was deemed significant if it had a mean of 3.5 or more. Where two or more criteria had the same mean, the one with the lowest standard deviation was assigned the highest significance ranking (Ahadzie, 2007). Considering Table 1 and Table 2 below, all the identified variables had a mean greater than 3.5, signifying the importance of the variables as challenges of QS firms and expectations of the individual quantity surveyors. Moreover, all the factors had a standard deviation of less than 1.000 which shows a high level of consistency between the respondents' interpretations. Hence, depicting a good representation of the population (Ahadzie, 2007). Also, the standard error means of the variables were closer to zero, signifying a consistency of agreement between the respondents. The relative importance index (RII) is calculated using the following equation:  $RII = \Sigma W/A \times N$ , where  $W$  is the weighting given to each factor by respondents ranging from 1 to 5,  $N$  is the total number of respondents, and  $A$  is the highest response integer (5 in this case).

##### 3.2.1. Discussions

One major challenge of innovative QS firms in Ghana is how to eradicate corruption in the industry. Corruption is caused by multiple factors, including low remuneration levels, bidding process competition, a flawed legal system, fee cutting due to excessive competition of consultants' fees, intimate relationships among contractual parties, fluctuations, cronyism, conducting service delivery in a monopolistic manner, and the disproportionateness of

information that exist between parties (Sohail and Cavill, 2008; Stansbury, 2005; Smith, 2004; Transparency International, 2006).

Table 1 Challenges of innovating QS firms

QS Firms Challenges	N	Sum	RII	Ranking	Mean	Standard Error	Standard Deviation
How corruption in the industry can be eradicated	68	293	0.862	1st	4.310	0.107	0.885
The need to ensure higher standards of transparency and accountability	68	282	0.829	2nd	4.150	0.082	0.675
Enhancement of the level of professionalism in the industry	68	282	0.829	3rd	4.150	0.103	0.851
The need for improvement in procurement processes	68	281	0.826	4th	4.130	0.093	0.771
Development of new skills by seizing opportunities of the available technologies like CAD	68	274	0.806	5th	4.030	0.089	0.732
How the construction value chain can be made more efficient	68	273	0.803	6th	4.010	0.080	0.658
How concerns of health and safety in project delivery can best be addressed	68	266	0.782	7th	3.910	0.083	0.685
How the adversarial mindset of practitioners can be transformed, and a collaborative partnering approach promoted	68	257	0.756	8th	3.780	0.086	0.709
How to improve its R and D and strengthen the bases of their strategic assets such as education, training, experience and knowledge	68	255	0.75	9th	3.750	0.099	0.817

Source: Field Survey, 2017

Eradication of corruption in the industry is connected to the need to ensure higher standards of transparency and accountability; this ranked second amongst the major challenges of the QS industry agreed upon by respondents. Transparency is the openness of business practices while accountability is the responsibility for someone or some activity. Ofori (2012) asserted that, as quantity surveyors are responsible for the cost engineering and financial management of construction projects, they are in a strong position to establish a higher standard of transparency and accountability in their service. Quantity surveyors can use technology to integrate costs and other relevant data to enhance accountability and responsibility for all stakeholders.

Enhancement of the level of professionalism in the industry came third among the challenges of innovative QS firms. The concept of professionalism has been expounded by several authors in literature (see; Bell, 1990; Oates, 1993; Hanlon, 1998; Knight & Morledge, 2005; Lincoln, 2006). Bell (1990) argues that the framework of professionalism is built around character, status, standards, and methods, while Oates (1993) is of the opinion that professionalism goes beyond knowledge of ethics and rules in the professional book. Hanlon (1998) asserted that for professionals to have control over the service they render, they must keep redefining their concept of professionalism. The changes that have hit the QS industry have caused a shift in

service delivery, increased access to knowledge, increased client demands, competition from other professions, globalization, and new opportunities in other job markets (e.g. petrochemical, oil and gas, aeronautical). These changes have challenged the profession to increase their knowledge and adapt to technology (Smith, 2004; Carlidge, 2011; Ashworth et al., 2013; Owusu-Manu et al., 2014). Therefore, though quantity surveyors have the attribute of professionalism, they must still improve upon it to remain competitive and lucrative in the job market (Vee & Skitmore, 2003).

Changes in procurement methods present an undeniable challenge to the QSP (Brümmer 2004; Dada, 2017). The QSP must, therefore, improve the procurement processes (Kumaraswamy & Dulaimi, 2001). Quantity surveyors must provide advice to stakeholders on procurement and contractual issues, re-engineering their procurement strategies to take advantage of opportunities in the upstream supply chain (Smith, 2004; Olanrewaju, 2016). Cunningham (2014) defines procurement systems as the development of procurement strategy and advises the adoption of the most appropriate procurement route. Modern procurement strategies, such as public-private partnerships have exposed the potential and relevance of quantity surveyors toward best service delivery (Olanrewaju, 2016).

The QSP must also take advantage of the advent of new technology to better their service output (Ofori, 2012). Technology and computer-aided designs (CAD) present a challenge to the QSP, as surveyors must become experts in these new trends (Smith, 2004; Ofori, 2012). A survey conducted by Olatunji et al. (2010) reported that BIM offers a significant challenge to the QSP (see also Ashworth et al., 2013). However, when quantity surveyors develop BIM, CAD, and collaborative project management skills, there is the possibility of productivity improvement and being part of future virtual-electronic project teams (Smith, 2004; Olatunji et al., 2010; Ofori, 2012;).

### **3.3. Expectations of Individual Quantity Surveyors in Innovative QS Firms in Ghana**

#### *3.3.1. Discussions*

Individual quantity surveyors expect to enhance their skills and further develop technologies and innovations to achieve sustainable buildings. They ranked this variable as their highest expectation. The skill set of the QSP is necessary to the broad practice of the profession (Dada & Musa, 2016). With the advent of new technologies and computer programs and a focus on sustainability, the QSP must concentrate on value-adding and developing the organizational skills of its members so that they can remain competitive (Hardie et al., 2005). Hill and Bowen (1997) define a sustainable building as one that shows a healthy built environment based on ecological ethics and resource competence. The drive toward sustainable development offers the opportunity for quantity surveyors to go beyond their present focus on cost to provide leadership in the area of overall economic viability of constructed items, which incorporates the issue of sustainability (Ofori, 2012).

As innovators, quantity surveyors expect to be more entrepreneurial and proactive. With the changing face of the industry, changes in procurement systems, and the advent of new technologies, quantity surveyors should refine the services they offer (Brümmer, 2004). Proactiveness does necessarily mean doing something new, but rather thinking ahead and making the requisite changes to stay competitive (Stopford & Baden-Fuller, 1994). Firms can be proactive in renewal by borrowing ideas as a means of breaking from their past behaviors. Stopford and Baden-Fuller (1994) emphasized that although entrepreneurial organizations can be proactive, this is not the same as taking high risks.

Table 2 Expectations of individual innovators (Quantity Surveyors)

Individual Expectations	N	Sum	RII	Ranking	Mean	Standard Error	Standard Deviation
The need to further enhance their skills, and help to develop the technologies and innovations to achieve sustainable buildings	68	296	0.871	1st	4.350	0.081	0.664
The need to become more entrepreneurial and proactive	68	295	0.868	2nd	4.340	0.095	0.784
The need to develop new niches, cultivate new knowledge, and break into new areas in order to enhance their competitiveness	68	286	0.841	3rd	4.210	0.088	0.724
How to enhance the social image of the industry; attract, retain, and develop talents	68	276	0.812	4th	4.060	0.083	0.689
The need to play a more effective and proactive role across all stages of the project life cycle	68	273	0.803	5th	4.010	0.095	0.782
The need for expanding their current role by increasing staff innovation and absorptive capability	68	265	0.779	6th	3.900	0.103	0.849

Source: Field Survey, 2017

The third-ranked variable as the expectation of individual innovation champions was the need to develop new niches, cultivate new knowledge, and break into new areas in order to enhance their competitiveness. Innovative quantity surveyors must increase their competitiveness in new and upcoming fields of public interest, such as sustainability. Throughout literature, scholars have stressed on the point that quantity surveyors need to break into new niches. Ofori (2012), for instance, contends that the changing landscape of the construction industry demands that current practitioners and future professionals should proactively drive change instead of merely coping with developments. Harun and Abdullah (2006) suggest that quantity surveyors should not limit themselves to the traditional boundaries of cost management; they must develop new niches, cultivate new knowledge, and break into new areas in order to enhance their competitiveness.

#### 4. CONCLUSION

Grounded in an exploratory survey of QS firms that champion process innovation firms in Ghana, this study was conducted to identify the challenges of these firms, and the expectations of the individual quantity surveyors sat these firms. The study provides considerable insight into the paradigm shift of the QSP and how it has evolved until now. The QPS is now faced with new challenges, and its members are proactively looking to better their services and output. From the analysis, the top three challenges facing QS firms are how to eradicate corruption in the industry, how to ensure higher standards of transparency and accountability, and how to enhance the level of professionalism in the industry. The top three expectations of the individual quantity surveyors at the QS were the need to further enhance their skills and develop the technologies and innovations to achieve sustainable buildings; the need to become

more entrepreneurial and proactive; and the need to develop new niches, cultivate new knowledge, and break into new areas in order to enhance their competitiveness.

A priori, it would be in the Ghana Institution of Surveyors (GhIS) best interest to alter their rules and regulations to enable the profession to eschew corruption, ensure transparency, and increase the professionalism of its members. Hence, ensuring accountability, innovation, and continuing professional development of its members. Moreover, the competencies of the profession could be enhanced if higher education institutes that train QS professionals to update their course modules to reflect the current trend of the QSP. The government could also help increase the integrity of the profession by allocating governmental projects through proper procurement strategies and opening up bidding to enable a fair distribution of resources within the country.

The study was limited to exploring the challenges and expectations of innovative QS firms and quantity surveyors in Ghana. A further study could be conducted to determine how the expectations and the challenges of the QS firms and quantity surveyors can be managed. A study into the skill set required for professional quantity surveyors to take advantage of new technologies and computer programs would also be imperative. Additionally, developing a robust continuing professional development approach for the QS industry to ensure the development of its members is essential.

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