CURRENT AND FUTURE CHALLENGES FACING NEW ZEALAND QUANTITY SURVEYORS: PRIORITY ISSUES AND POTENTIAL SOLUTIONS

Paul O’Brien, Jasper Mbachu and Sam Lomax

Leighs Construction Ltd, Auckland; Paul.Obrien@leighsconstruction.co.nz
School of Engineering & Advanced Technology, Massey University, Auckland; J.I.Mbachu@massey.ac.nz
Savory Construction, Auckland; Sam.Lomax@savory.co.nz

ABSTRACT

This paper explores some of the key challenges New Zealand Quantity Surveyors currently face and some potential measures to address them. Through a pilot survey of 110 experienced and practising quantity surveyors, key challenges at the pre-contract, construction and post-construction phases were identified. Respondents were also asked to identify key challenges in the evolving and widening role of Quantity Surveyors in the future. The survey feedback was analysed using content analysis.

The paper poses some research questions and proffers potential solutions to the challenges at each building development phase based on the survey findings. It also addresses some of the future challenges identified in the survey. The aim is not to present definitive lists of challenges and solutions facing practitioners, but to provide a starting point for more detailed research investigations into the subject. Based on the challenges identified in this paper, it is hoped that the research community will be in a position to initiate research projects aimed at exploring these challenges in greater detail and hence offer solutions that could be of benefit to practitioners and the industry as a whole.

Keywords: Construction, construction economics, cost management, project management, quantity surveying.

1. INTRODUCTION

Quantity Surveyors (QS) have traditionally overseen the financial and contractual administration of construction projects, ensuring that the preliminary cost estimates advised at the outset of any project are monitored and adjusted as the project is developed from design through tendering to construction and close-out (Baloyi & Price, 2003; Elhag et al., 2005) In their position as the custodian of the ‘project purse strings’ of the multi-million dollar investment in the construction industry, QS perform a vital role (Mbachu, 2011). Depending on the efficiency level and effectiveness with which they perform this role, it is arguable that the construction industry’s ability to contribute to the economic and social development of the country can be impaired or improved (Ling, 2005; Hanna, 2007).

On account of several factors, the efficiency and effectiveness of the QS performance can be severely constrained. Research that looks at the challenges QS face and identifies the appropriate measures to address these challenges can therefore be crucial for supporting improved performance which will in turn likely contribute to improved performance of the wider construction industry. The same could be said of many of the industries participants.
In the light of there being little or no local research in this area, the intention of this paper is to identify some of the key challenges New Zealand QS face and suggest some measures for addressing the challenges as, it is hoped, a stimulus for further and more thorough research. As noted earlier, the challenges were initially identified through a pilot survey of practising quantity surveyors. Relevance of the key challenges and the appropriateness of the suggested solutions would need to be validated through a thorough research programme. The research community is encouraged, indeed challenged, to initiate research projects aimed at exploring these issues in greater detail and proposing solutions that would be of benefit to quantity surveyors, other practitioners and the industry as a whole.

**Research objectives**

The key objective of this paper is to provide answers to the following research questions:

1. What are the current and future challenges facing quantity surveyors in New Zealand?
2. What potential solutions exist for addressing the challenges?
3. Which of these challenges and solutions are worthy of further detailed empirical investigation?

**2. RESEARCH METHOD**

*Data gathering*

Empirical data for the research was obtained through personal interviews conducted over a three year period (from March 2012 to October 2014). The interviewees were experienced quantity surveyors based in Auckland, Christchurch, Wellington, and the sub-regions of these cities. The interviewees were selected through purposive sampling technique. This sampling approach is recommended (Patton, 1990; Morse, 1991; Cooper and Schindler, 2006) as the most appropriate for the nature and purpose of the study, particularly given that the aim was to obtain a qualitative foundation for the design of a more representative and quantitative study. In addition, it allowed the engagement of interviewees who could give authoritative feedback on the subject matter, who were knowledgeable about the issues being investigated through their current involvement in the building development process, and “who were articulate, reflective and willing to share with the interviewers” (Coyne, 1997, p. 624). Interviewees were recruited through the researchers’ network and contacts.

*Data analysis*

At the end of the interviews, feedback was analysed using content analysis (Patton, 1990). This enabled the researchers to identify recurring concepts or themes in the feedback and responses. Frequency count was used to identify and prioritise the concepts based on the number of mentions by interviewees (Tronchim, 2006).

**3. RESULTS AND DISCUSSIONS**

3.1 Survey responses

Usable responses were received from 110 survey participants over the period. These were each interviewees who met the quality criteria set for respondents and who were available to participate in the annual window for data collection. The demographic profiles demonstrated that feedback was received from quantity surveyors from different backgrounds, positions and locations.

3.2 Demographic profiles of the respondents

Of the responses, 40%, 32% and 26% were from the Auckland, Christchurch and Wellington regions, respectively. The balance (2%) came from Southland. Geographically, the majority of the responses were from the Auckland region (which of itself is no surprise given the relative population of each of these regions).

In terms of industry role, majority of the interviewees were contractor quantity surveyors (52%); others were consultant quantity surveyors (45%), and quantity surveyors who worked in other areas such as property development (2%) and banks (1%).

Professional memberships of the interviewees comprised the New Zealand Institute of Quantity Surveyors (NZIQS) (49%), the Royal Institution of Chartered Surveyors (RICS) (42%), and ‘other’ category, namely, the International Association of Cost Engineers (9%). A number of participants held membership of two or more professional bodies.

In terms of status in their respective professional associations, majority (82%) were full members, with 35% of these holding Fellow or Registered Quantity Surveyor status. The balance (18%) held Associate/ Graduate/ Affiliate membership status. To meet the quality criteria, feedback from student members was not canvassed.

In terms of experience, the majority (60%) had over 20 years’ experience. Only 4% had less than 10 years’ experience. Feedback from those having less than 5 years’ experience was not included in the analysed data.

The positions of the interviewees within their respective organisations ranged from director / principal partner (51%), senior cost manager / consultant (40%), and intermediate positions (9%). Again, feedback from juniors / interns was not canvassed.

The rich demographic profiles of the respondents added to the quality of the responses received.

3.3 Current and future challenges facing quantity surveyors

Unsurprisingly, given the dynamic environment of the industry and the seemingly continual evolution of the quantity surveyor’s role, the challenges faced by quantity surveyors in New Zealand are multifaceted. Content analysis of the feedback offered by interviewees showed that the challenges could be broadly aggregated into four categories:

- Current challenges relating to the core technical role of the QSs.
- Future challenges relating to evolving professional roles, in particular specialist services.
- Stakeholder related challenges (being the acts/ omissions of all other participants in the construction process including clients, architects, engineers, Building Consent Authorities, suppliers, subcontractors, etc.)
- External challenges arising from broader factors including:
  - Local industry and market conditions, including the boom and bust cycles, skill shortage and the level of competition;
  - macro- & micro-economic trends, including exchange rates, interest rates, taxation, insurance and credit finance;
  - technological advances;
  - statutory/ legal compliance issues;
  - socio-cultural issues; and
  - global dynamics.

These categories or ‘clusters’ provide hotspots for research investigations, looking at how the role of the quantity surveyor is influenced by these dynamics.

Each cluster is explored in greater detail in later sections.

3.3.1 Current challenges relating to core technical role

A number of the current challenges facing quantity surveyors relating to the professions’ core technical role in the construction processes are articulated in Figure 2 below.

Figure 1: Current and future challenges of the quantity surveyor
Figure 2: Broad categories of current challenges faced by the quantity surveyor.
3.3.1.1 Key challenges at the pre-contract phase

The pilot survey identified pre-contract challenges faced by quantity surveyors in the following areas of the services / duties which are performed at the pre-contract phase (either for a client or for a contractor involved in design and build or construction phase contracting.)

- Preliminary cost advice
- Investment appraisal/ feasibility studies
- Cost planning and cost checking
- Value management/ value engineering
- Advising on contract strategies and procurement systems
- Estimating contract price for use in benchmarking tenders
- Preparing tender documents and inviting tenderers
- Negotiating contract prices and preparing contract documents
- Preparing budgets and cash flow forecasts

The key challenges at this phase are set out in figure 2.

Key pre-contract phase research questions and suggested solutions

Figure 3 highlights those questions and issues that quantity surveying profession would like the research community to address in relation to the challenges faced at the pre-contract phase of construction projects. The challenges have been broadly grouped into those faced by client engaged quantity surveyors and those engaged by construction contractors together with possible solutions put forward as suggested areas for further investigation of their effectiveness. The identification of alternative, cost effective solutions by the research community is considered paramount.

In addition the research community is challenged to explore and identify other issues occurring at this phase of the construction process, together with identifying suitable solutions.

Background to the key challenges at the pre-contract phase

The most critical pre-contract phase challenges relate to the quality of the design documentation, and clients’ preference for the lump sum fixed price contract and lowest cost conforming bid. These two challenges were seen by the majority of the quantity surveyors interviewed in the course of this preliminary study as major contributing factors to the other challenges faced in this and the remaining phases of the construction project process. The key issues highlighted by the interviewees are discussed in the following subsections.

Quality of design documentation

The outcome of the pilot survey suggests that poor quality of design documentation – both drawings and specifications – is one of the key challenges faced by consultant and contractor quantity surveyors. Concerns raised included:

- Design drawings and specifications being in conflict, containing errors or lacking sufficient details for accurate cost advice to be provided, measurements and pricing to be carried out, and for realistic, bona fide tenders to be submitted.
- Buildability issues – designs too complex or fraught with constructability problems, arising mainly from a lack of understanding of the way in which buildings are constructed in practice and contractors’ approaches to construction.
- Designs not complying with Building Code, with the risks of non-compliance passed on to the contractors and tenderers.
- Designs and design assumptions not aligned with specific site conditions and restrictions. Designers are accused of often replicating designs without doing adequate site investigations and ensuring that the designs fully address unique site issues. Ultimately, risks are passed on to the contractors and tenderers with the usual caveat that “the tenderer should visit the site to ascertain the site characteristics and any other issues that may affect cost and will be deemed to have allowed for the cost of dealing with these in the tender”, yet doing so may make the tender uncompetitive.

Clients’ preference for lump sum fixed price contracts and lowest cost conforming bid

The view of the pilot participants is that New Zealand construction clients, especially public sector clients, prefer lump sum fixed price contracts, an open and competitive tendering process and operate a lowest cost conforming bid procurement award process. In tandem, many clients seek to transfer as much risks as possible to the contractor, yet their preferred contract and procurement strategies arguably do not provide commensurate reward to the contractor for shouldering the bulk of the risks. It is perceived that these clients’ and their financiers’ preferences cause a lot of issue for the construction industry and its service providers, including quantity surveyors.

Open/ competitive tendering is very expensive, involves a lot of paper work, is time consuming and offers limited chances of tendering success. It is often joked that the project is awarded to the tenderer who makes the biggest mistake!

Tenderers invest significant resource and effort in preparing and submitting tenders, which is wasted if they fail to win the tenders, often with no feedback as to why they lost the tender. The ‘successful’ contractor may not be successful in the true sense of the word, because nature of the contract and lowest cost conforming bid do not allow room for sustainable margins on a project.
For the contractor quantity surveyor, the quandary is margin - too much margin will likely mean that the job will not be won in the first instance; too little margin may win the job but could result in cash flow problems which if experienced on other projects, can result in more significant and terminal issues.

3.3.1.2 Key challenges at the construction phase

The pilot survey identified Construction phase challenges faced by quantity surveyors in the following areas of the services / duties which are performed at this phase.

- Contract administration.
- Financial management of the project, including:
  - Interim valuations and payments
  - Monitoring, and exercising cost control over the project
  - Forecasting costs to complete and preparing financial statements
  - Final account preparation and agreement
- Evaluating and settling claims, including subcontract claim management.
- Settlement of payment disputes and giving expert evidence in arbitrations and disputes.

The key challenges identified at this phase are set out at Figure 2 above.

Key construction phase research questions and solutions

Figure 4 highlights those questions and issues that quantity surveying profession would like the research community to address in relation to the challenges faced at the construction phase of projects. It also presents possible solutions to these challenges. Research is needed to validate the relevance of these and identify any other challenges together with recommending alternative, cost effective solutions through a process of further investigation.

CONSTRUCTION PHASE CHALLENGES

Research questions

Contractor’s claims & payment entitlements

Amidst the prevalence of poor communication and documentation, how do we carry out proper evaluations & provide impartial cost advice on contractor’s contractual entitlements which may be in conflict with client’s interests & expectations?

Achieving decent margin

How do we make sustainable margins on lump sum fixed price contracts won on lowest cost conforming bid, in situations where a client is quick to dispute claimed amounts within payment schedules, and where taking any formal DR steps results in reputational damage or removal from future tender lists?

Suggested solutions put forward for confirmation/disconfirmation

1) Promote partnering agreement which focuses on trust, transparency and win-win outcomes for parties.
2) Leverage negotiation & conflict management skills to resolve all cost-driven conflicts of interests and disagreements before they become full blown disputes that require arbitration, adjudication or litigation.
3) Use effective communication system to bring everybody on the same page in terms of contractual responsibilities, decisions, requirements and expectations.
4) Ensure accurate documentation of all original and revised project information impacting on costs, quality & time targets and communicate same to all parties in a timely and comprehensive manner.

1) Adopt lean construction principles (LCP), last planner methodology (LPM) and waste minimisation to reduce all forms of construction waste and costs.
2) Ensure effective & continuous tracking of expenditure against budget and follow up early decisions against any over spending.
3) Recommend closer supervision of the subcontractors’ work to ensure quality, cost and schedule performance and minimise defective work and cost and time overruns.
4) Ensure that all variation orders are captured and signed off and that costs & time implications are agreed upon prior to onsite implementation.
5) Ensure proper record keeping of evidences for supporting progress and final claims.
6) Ensure accurate documentation of all original and revised project information impacting on costs, quality and time targets and communicate same to all parties in a timely and comprehensive manner.

Figure 4: Key questions and tentative solutions on construction phase challenges for further investigation

3.3.1.3 Key challenges at the post-construction phase

The pilot survey identified post-construction phase challenges faced by quantity surveyors in the following areas of services / duties which are performed at this phase.

The key challenges identified at this phase are set out at Figure 2 above.

Key post-construction phase research questions and suggested solutions

It was found that both consultant and contractor quantity surveyors shared the same overall challenges at the post-construction phase. The key questions and suggested solutions are summarised in Figure 5.

The research community is again challenged to validate the findings of the pilot study, identify any further challenges experienced in this phase of the project cycle and identify cost effective, sustainable solutions to each of the challenges.
4. FUTURE CHALLENGES

The future challenges facing quantity surveyors mainly emanate from the evolving role of the profession. The distinctive technical role of the quantity surveyor has developed over the years in response to the increasing complexity and diversity of client needs and market demands (Frei et al., 2013). The scope of the quantity surveyor’s role has expanded from the measurement and pricing of builder’s work to include wider technical and specialist services roles such as the following:

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Enhanced technical roles

- Building Economist: concerned with the optimal use of construction resources and the maximisation of value-for-money solutions;
- Value Engineer: identification and costing of alternative design and construction solutions with a view to recommending the most cost-effective solutions;
- Procurement Consultant: making recommendations for the most appropriate contract procurement strategy arrangements that best meet the needs of the client;
- Cost Manager: responsibility for the forecasting/ budgeting, planning and organising, implementing and monitoring, reporting and controlling project financial spend to ensure that the agreed cost target is met;
- Contracts Administrator: overseeing the contractual administration of the project to ensure compliance with the terms and conditions of the contract, and the wider statutory/ legislative requirements for the project;
- Commercial Manager: management of the overarching commercial aims and objectives of a business.

New and emerging specialist roles

Drawing upon the key base competencies in cost and financial management, procurement, tendering, contract administration, negotiation and conflict management, the quantity surveyor has also been able to take on specialist services roles including the following (Mbachu and Frei, 2012; Frei et al., 2013):

- Project management.
- Facilities management.
- Dispute resolution and expert witness services.
- Property consulting and development services.
- Value engineering and value management.
- Due diligence auditing.
- Investment appraisal, life cycle costing and development Monitoring
- Asset valuation & management.
- Insurance valuation.
- Building surveying and infrastructure audit.

Even a passing look at the progression and widening of the scope of the once distinctive role of the quantity surveyor from the perspectives of consulting, contracting and specialist services, suggests an evolution from being tightly focused on technical aspects of measurement and valuation of building work to wider roles in construction economics, investment appraisal, value management, contract administration, cost/ financial management and dispute resolution.

The flexibility and ability of the quantity surveyor to evolve with changing market demands are keys to the survival and continuing relevance of the profession despite the threats of technological advances and encroachment of other professions into the quantity surveying domain.
That said, it is imperative that we continue to teach and pass on the core skills and base competencies on which this evolution has been founded.

### 3.3.2 Key challenges for the future

Whilst some are highly specialised, effective performance of these evolving roles requires a broad range of technical, managerial and generic skills, underpinned by core skills and base competencies complemented by detailed understanding of complimentary subjects which may include economics, business finance, accounting, marketing, communication, ICT, management, construction law, negotiation, conflict management, dispute resolution, human resources management, change and strategic management, land economics, property valuation, risk management, and leadership. Arguably, this means that a quantity surveyor that aspires to be at the top of the game needs to embrace life-long-learning attitude. The modern quantity surveyor needs to upskill through formal and informal education and training in order to broaden his/her skill base and remain abreast of current developments in the broadening field.

**Priority research questions and suggested solutions relating to future challenges**

Table 1 highlights those questions and issues that quantity surveying profession would like the research community to address in relation to the future challenges faced by the profession. Possible solutions to these challenges are also highlighted. Research is needed to validate the relevance of these and identify any other challenges, as well as recommend alternative, cost effective solutions through a process of further investigation.

**Key research questions:**

1. What new and emerging developments are expected to shape future directions in the field of quantity surveying?
2. What skills and knowledge does the quantity surveyor need to be able to respond more proactively to these developments, maximise the opportunities and minimise inherent threats?
3. What training programmes or CPDs are required to provide the quantity surveyor with the requisite skills and knowledge for growth and continuous relevance?

**Possible solutions:**

1) Building information management (BIM), green building economics (GBE) and computer aided manufacturing (CAM) are the key new and emerging developments that will shape future directions in the field of quantity surveying.

2) To respond more proactively to these developments, the quantity surveyor needs to broaden his or her skillset to include 5D BIM capability, economics of sustainable design and construction, client relationship management (CRM) and strategic & change management.

3) To equip the quantity surveyor with the requisite knowledge for growth and continuous relevance, the upskilling and training programmes for the quantity surveyor should be strategically designed to deliver on the above competencies. Short course, in-house training and CPD events can be effectively employed for this purpose.
Table 1: Priority research questions and potential solutions relating to future challenges faced by quantity surveyors.

4. CONCLUSIONS

This paper has examined the current and future challenges facing quantity surveyors in New Zealand identified through the pilot survey. Preliminary findings have identified the top challenges in the core technical roles of the consultant and contractor quantity surveyors as well as those of the evolving specialist roles. Key research questions and possible solutions for addressing the identified challenges have been provided as a catalyst for further validation and expanded research initiatives into the challenges.

Overall, it should be noted that quantity surveying is just one of the integral parts of the built environment supply chain (BESC). A significant proportion of the challenges the profession faces draws from the wider problems of the BESC. Whilst interim solutions have been suggested, holistic and long-lasting solutions to these problems require a coordinated approach that looks at the broader issues of the BESC and the constraints of the external business environment.

It is suggested that a multi-disciplinary and collaborative approach is required to address the problems with a view to finding multi-dimensional solutions. It is in this regard that the collaborative initiative being facilitated through the formation of the annual New Zealand Built Environment Research Symposium (NZBERS) and the hosting of today’s series should be acknowledged and encouraged.

Having relayed the issues faced by Quantity Surveyors to the members of the research community here today, we would hope that academic staff and postgraduate students will take up the challenge and design research projects aimed at exploring these matters in greater detail and hence offer solutions that will be of benefit to the industry as a whole.

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REFERENCES


