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THE WORK AND SKILLS BASE OF THE QUANTITY SURVEYOR IN IRELAND AN INTRODUCTION

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ABSTRACT

The role of the quantity surveyor is one that is often unclear amongst the general public. This study discusses the role and skills of the quantity surveyor in carrying out the financial management of building construction projects. The study outlines the roles of various categories of chartered surveyor and focuses on the duties of the quantity surveyor working in a consultancy role for building clients, and working in a commercial capacity for building contractors. The study examines recent developments in the profession, which have led to the quantity surveyor delivering a number of management related consultancy services, in response to rising client expectations and demands. The study also outlines the various competencies and skills required of chartered quantity surveyors in discharging their professional duties.

The study is intended as an aid to Irish students undertaking undergraduate and conversion masters courses in quantity surveying and construction management related disciplines.

Daddy - What's a Quanny Surveyor?

There is an amusing and informative clip on YouTube entitled *The Quantity Surveyor Handbook* (BCAsingapore 2013). It features young people from Singapore, who carry out a street survey in which they ask passers-by what they thought quantity surveyors do. What emerges is that young people have very little idea about what quantity surveying actually involves. Replies included that quantity surveyors conduct interviews or surveys, or investigate ground conditions; the old 'chestnut' that the QS counts bricks was not

long in surfacing. For many people, the perception of the quantity surveyor as a grey middle aged bean-counter (man) in a grey suit obviously lingers on. The presenter of the clip, however, goes on to present an attractive, positive and outgoing view of a profession that is now firmly located in servicing construction clients' needs in a wider business environment. She describes the modern quantity surveyor as one set accountant, one set lawyer and one set engineer.

The Range of Surveying Disciplines

The Society of Chartered Surveyors Ireland's (SCSI) website explains that surveying is a collective term for a range of careers concerned with property, construction and land. It adds that careers in surveying include '*quantity surveying, estate agency, valuation and investment, project management, property and facilities management, mapping, planning and development and mining*'. The website describes surveyors as experts in property, construction and land and describes them as '*logical thinkers and effective communicators with strong business acumen. Highly adaptable, Surveyors are involved with cross-disciplinary teams and work in a variety of global markets in both the public and private sectors.*' (2014a)

Quantity surveying is located within a range of construction surveying specialisms, these include quantity surveying, building surveying, project management and facilities management. The SCSI (2014b) write that '*Surveyors provide value for money through the efficient cost management of construction process – their objective is to control cost, limit risk and add value to the project ensuring that the design and construction of a project delivers value to the client.*' The Society adds that when a surveyor is appointed as a project manager, they will help the client to develop the project brief and then select, appoint and co-ordinate the project team. The Society notes that surveyors operate in all construction sectors covering '*residential, commercial, industrial, leisure, agricultural and retail facilities*' and infrastructure projects such as '*roads, railways, waterways, airports, sea ports, coastal defences, power generation and utilities.*'

Quantity Surveying

The role of quantity surveyors may be viewed as providing the financial and commercial management services on construction projects. Cartlidge (2009) writes that quantity surveyors are employed in a number of different fields which he categorises principally as private practice and contracting surveying. Surveyors often work as consultants in private practice or may work within development companies, arms of large commercial organisations or financial institutions. They may also work for public sector organizations and within the insurance industry as loss adjusters. They are often described using the term 'PQS' or professional quantity surveyor. Contractors' surveyors are often referred to using the term 'CQS' and may be employed by main contractors, sub-contractors and suppliers, for whom they carry out the commercial management functions on the construction project. The quantity surveyors' involvement varies from project to project and depends heavily on the individual nature of the scheme and the methods by which the project is delivered.

Quantity Surveyors are typically employed on medium and large scale building projects. Chartered Quantity Surveyors are members of the SCSI which operates in partnership with the London-based Royal Institution of Chartered Surveyors (RICS) the leading global professional body for property, construction and land professionals worldwide.

The Professional Quantity Surveyor (PQS)

The Consultant Quantity Surveyor (PQS) is a building economist concerned with the financial management of the building project. Hore, O'Kelly and Scully comment that professional quantity surveyors ensure that clients secure value for money and that the completed projects provide substantial added value to the client's property asset. They add that *'in addition to being construction cost consultants, quantity surveyors are playing an increasingly important role today in project management, value management and facilities management. Furthermore, they are sometimes engaged as lead consultants for large projects, where they are responsible for the delivery of all professional services from inception to completion.'* (2009, p.1) They comment that the consultant quantity surveyor may carry out a range of duties with the emphasis on providing sound cost

management rather than solely preparing bills of quantities and final accounts. They list typical quantity surveying functions as:

1. 'Preparing approximate estimates of cost in the very early stages of the formulation of a building project, giving advice on alternative materials, components and types of construction and assisting with feasibility studies.
2. Cost planning and value analysis during the design stage of a project to ensure that the client obtains the best possible value for money, including adding value to property assets, preferably having regard to total costs using life cycle costing techniques. Costs should be distributed in the most realistic way throughout the various sections or elements of the building and tender figures should be kept within the client's budget.
3. Advising on the most appropriate form of building procurement, having regard to the type of project, quality, speed of construction, apportionment of risk and price certainty.
4. Preparation of bills of quantities and other contract documents relating to the project.
5. Examining tenders and priced bills of quantities and reporting the findings.
6. Negotiating rates with contractors on negotiated contracts and dealing with cost reimbursement contracts, design and build, management and other forms of contract.
7. Valuing work in progress and making recommendations as to payments to be made to the contractor, including advising on the financial effect of variations.
8. Preparing the final account on completion of the contract works.
9. Advising on the financial and contractual aspects of contractors' claims.

10. Giving cost advice and information at all stages of the contract and preparing cost analyses and cost reports to clients.
11. Specialist advice, such as technical auditing, valuations for fire insurance, giving advice on funding, grants, capital allowances and taxation, risk analysis and management, bank monitoring, project management, building services cost advice and other related matters including health and safety and quality control.' (2009, pp. 8-9)

Cost advice and cost planning functions enable the QS to advise building owners, architects and the other members of the design team of the probable costs of construction schemes and on the costs of alternative designs before and during the design development phase of the project. This assists the design team to arrive jointly at practical designs for projects while staying within the client's budget. This advice enables design and construction to be controlled within predetermined expenditure limits at all stages of the project.

QS advice on procurement strategy and tendering arrangements aims to identify the most appropriate means of getting the project built. The QS prepares tender documents including bills of quantities which enable competitive tenders to be obtained. The QS will conduct tender evaluation and recommend selection of a suitable contractor. Where appropriate the QS will negotiate with potential main contractors on behalf of the employer prior to entering into contract.

The QS is engaged in a variety of post contract services which aim to ensure that the contract is correctly administered financially and that the final cost of construction is kept within budget. These activities involve recommending valuations for payments to the contractor as work proceeds on site, the measurement and valuation of variations and claims during the contract and for the preparation of the final account, on the basis of which the architect certifies final payment. The regular and ongoing reporting of the evolving construction costs and cash-flow situation permit cost control measures to be implemented to keep the project within budget.

The Contractor's Surveyor

A large proportion of quantity surveyors work with construction companies, with contractors and subcontractors. Most medium sized and large contracting organizations employ a number of quantity surveyors. The contractor's surveyor's duties vary and depend to a large degree on the size of the company. Hore et al (2009) comment that in smaller companies these duties are of a general nature and are often very wide in scope. These include:

1. 'Preparing bills of quantities for small contracts and agreeing measurements with the client's quantity surveyor.
2. Collecting information about the cost of various operations from which the contractor can prepare future estimates.
3. Preparing precise details of the materials required for the projects in hand and compiling target figures so that the operatives can be awarded production bonuses.
4. Preparing interim costings so that the financial position of the project can be ascertained as the work proceeds and appropriate action taken where necessary; planning contracts and preparing progress charts in conjunction with the general foremen/site manager and making application to the architect for variation orders if drawings or site instructions vary the work.
5. Agreeing subcontractors' accounts; placing subcontract orders and comparing the costs of alternative methods of carrying out various operations, so that the most economical procedure can be adopted.
6. Advising on the implementation of contract conditions and different contractual methods.' (2009 p 9)

Hore et al. (2009) suggest that in larger companies, the contractor's quantity surveyor may not carry out all of these activities, as different departments handle specific activities and that the QS tends to be more specialized in such companies. They add that *'the senior*

quantity surveying function would typically be the responsibility of a senior chartered quantity surveyor who could have a senior executive or director status.'

Towey (2012) comments that the contractors quantity surveyor is typically answerable to a commercial and or project manager. He also identifies that the CQS typically checks that insurances are current, and vets that subcontractors' health and safety and environmental submissions to ensure that they comply with the contractor's requirements.

Quantity surveyors employed in contracting organizations may work as cost engineers, cost managers, contractual advisers, and procurement experts. In general the contractors QS's duties tend to be carried out during the construction phase of the building project. The tasks noted above typically mirror and overlap with those carried out by the PQS. Most of these tasks may be described as 'mainstream' QS activities involving measurement, valuation and contract administration, however the overriding contractors QS's objective is to ensure that the company is fully reimbursed for the work carried out on site.

The Evolving Role of the Quantity Surveyor

"Change is the law of life, and those that look only to the past or present are certain to miss the future". - John F. Kennedy 1917 -1963. – Quoted in Deacon (2005)

Ashworth Hogg and Higgs (2013) commence their book *Willis' Practice and Procedure for the Quantity Surveyor* with a definition taken from the 1971 Royal Institution of Chartered Surveyors report *The Future Role of the Quantity Surveyor*, it reads:

'ensuring that the resources of the construction industry are utilised to the best advantage of society by providing, inter alia, the financial management for projects and a cost consultancy service to the client and designer during the whole construction process.'

This aspiration is considered to remain valid nearly fifty years later. The Report found that '*The Quantity Surveyors distinctive competence is a skill in measurement and valuation in the field of construction.*'

Ashworth et al (2013) comment that these distinctive competencies or skills provided the quantity surveyor with the basis for the cost management of the construction project in the context of forecasting, analysing, planning, controlling and accounting. They refer to these activities as the ‘traditional role’ of the QS, and they comment that these services are still provided by some practices on medium and small scale projects. Hore et al’s (2009) description of the quantity surveying services, listed above, indicates that traditional services remain at the heart of current Irish QS practice.

Nevertheless, Ashworth et al. (2013) identify that various factors have operated to bring about significant change within the quantity surveying profession. They report the findings of the 1991 Davis, Langdon Everest report, *QS2000*, which identified changing client needs and attitudes, changing markets and business practice, a changing and more managerial industry, a changing QS profession, as well as the impact of information technology as drivers for diversification and expanding the range of services offered by the industry. They point in particular to the declining use of bills of quantities, which traditionally formed the principle source of fee income as a significant contributing factor in this process.

Cartlidge (2006) examines particular pressures including fee competition, globalization, information technology, client dissatisfaction, added value procurement and public-private partnerships combining with ‘the mother of all recessions’ in the UK following 1990 to bring about a ‘*heady brew of change*’. He adds later

In the early part of the twenty-first century, the range of activities and sectors where the quantity surveyor is active is becoming more and more diverse. The small practice concentrating on traditional pre- and post-contract services is still alive and healthy. However, at the other end of the spectrum the larger practices are now rebadged as international consulting organisations and would be unrecognisable ...[to earlier QS practitioners]. The principal differences between these organisations and traditional large quantity surveying practices are generally accepted to be the elevation of client focus and business understanding and the move by quantity surveyors to develop clients' business strategies and deliver added value. ... modern quantity surveying involves working in increasingly specialised and sectorial markets where skills are being developed in areas including strategic advice in the PFI, partnering, value and supply chain management.

Quantity surveyors have realised that the acquisition of a more extensive skills set enables them to deliver greater benefits to clients, which may, in turn, lead to more work (Fanous, 2012). Ashworth et al. (2013) comment that quantity surveyors now typically offer procurement advice in response to the increasing range of available options. Design cost planning coupled with whole life costing, value management and risk analysis and management add value to the services being offered in order to achieve client objectives. Quantity surveyors also have become more involved in the measurement and valuation of engineering services which traditionally had been dealt with through prime cost and provisional sums. Other evolved roles include contractual dispute resolution, project and construction management and facilities management. They list these developments in Box 1 below.

Investment appraisal.
Advice on cost limits and budgets.
Whole life costing.
Value management.
Risk analysis.
Insolvency services.
Cost engineering services.
Subcontract administration.
Environmental services measurement and costing.
Technical auditing.
Planning and supervision.
Valuation for insurance purposes.
Project management.
Facilities management.
Administering maintenance programmes.
Advice on contractual disputes.
Planning supervisor.
Employers' agent
Programme management.
Cost modeling
Sustainability Advisor.

Box 1 The Evolved Role of Quantity Surveyors (Circa 2012)

(Source Adapted from Ashworth, et al. 2013).

They point out the increasing importance of focussing on clients needs. Increasingly clients seek '*reduced time scales*', total rather than practical completion, '*simplified process*', procurement expertise, comprehensive service provision, '*excluding the*

exclusions, effective change management, and solutions not projects'. They support Powell's summarisation of client expectations as *'the seven Cs: - choice, co-investment and risk taking, commitment, credibility, competence, clarity and accountability, and consistency'* (cited in Ashworth et al. 2013).

Moss (2004) describes the contemporary role of the quantity surveyor as a 'client advocate and representative', who is proficient in construction design and economics, planning and procurement, administration and management, and project management. He argues that there can be no standing still and that the QS must be proactive in delivering client expectations in an increasingly competitive environment and 'shrinking' world.

The trend towards providing a greater range of services also occurred in Ireland, which experienced an unprecedented expansion in the industry from the mid 1990s to 2007. This Celtic Tiger period witnessed the establishment of multi-disciplinary practices and mergers of many of the leading UK and Irish practices. Hore et al. (2009) comment that there are now considerable variations of Irish *'quantity surveying firms, in respect to ownership, structure, size and total workforce. In relatively recent years we have seen established UK practices taking controlling interests in the larger quantity surveying practices in Ireland. Although current practices in Ireland are dominated by traditional practices, there is considerable evidence that practices have diversified from the more traditional boundaries.'*

Undergraduate research carried out in the Dublin Institute of Technology by Deacon in 2005 supports this view. He surveyed what might be described as nine 'prominent' quantity surveying consultancies, with the aim of establishing the types of services being offered to clients. He asked these practices to list innovative services they had carried out and found that fourteen 'non traditional' services had been provided to various clients. He reported the frequency these occurred among the nine practices surveyed. The services identified were: project monitoring and project management (6), development appraisal (3), facilities management, health and safety consultancy, environmental consultancy, project rescue and recovery, risk assessment and management, mechanical and electrical engineering cost management, dispute resolution and expert witness reports (2 each)

taxation advice / appraisals, insurance valuations and fire damage claims, civil engineering bills of quantities, and construction management services (mentioned by one practice each).

It is probable that further diversification and expansion of services offered to clients occurred during the Recession as practices struggled to survive in the catastrophic aftermath of the financial crisis. Further research in this area would be beneficial.

The Capital Works Management Framework

The increasing importance of cost certainty to public sector clients provided a particularly strong impetus in driving change within the Irish profession. The Government decision in May 2004 to reform public sector construction procurement procedures, led to the development of the Capital Works Management Framework (CWMF). This Framework consists of a suite of best practice guidance, standard contracts and generic template documents whose aims are to ensure greater cost certainty at contract award stage; value for money; and a more efficient delivery of projects. The guiding principles which underpin the construction contracts within the Framework seek to *‘ensure as far as practicable that the accepted tender prices and the final outturn costs are the same; and to allocate risk so that there is optimal transfer of risk to the Contractor.’* These primary objectives prioritise the importance of cost control for public sector clients who collectively have become the dominant client within the Irish construction industry. The quantity surveyor is the key design team consultant in delivering these objectives.

Guidance Note GN 2.2, published under the Framework deals with planning and control of the capital costs of projects and sets out the services to be provided by consultant quantity surveyors when undertaking public sector commissions. With regard to the skill base of cost consultants the Guidance Note states:-

To carry out proper cost planning and cost control on a project it is essential that expert Cost Advisers are appointed to carry out this work. ... These advisers should be appointed at the earliest possible stage (preferably at the same time as the appointment of the Design Team) and their responsibilities should be clearly assigned.

Cost Advisers must be skilled in the areas of cost management; value management; and risk management, including whole life cost analysis. Ideally, they should have experience of projects of a similar size, nature and complexity to that proposed. (Department of Public Enterprise and Reform, 2011)

GN 2.2 therefore requires QS practices to deliver services that would have been viewed as ‘innovative’ less than a decade previously. It is clear that the impact of rising client expectations is forcing quantity surveying practices to deliver added value by providing enhanced and diversified services on building projects.

Ashworth et al. (2013) comment that consultants are sometimes accused of adding excessive costs to projects while delivering late, and/or poor quality, expensive advice. They add, however that clients are usually willing to pay for services that can be shown to deliver financial benefits.

Hore et al. (2009) comment that future developments within the quantity surveying profession will be influenced by industrialisation, structural transformation of economies, information technology breakthroughs and increased globalisation of construction markets. They identify key drivers of changes as the business environment, the industry, customer needs, the profession itself, and the impact of IT.

The Skills Profile of the Chartered Quantity Surveyor

Moss (2004) argues that the contemporary QS is ideally a dynamic, people-person who facilitates cost and value management in innovative ways. This role goes well beyond the historic view of the profession as a boring, old hat, number crunching, brick-counting estimator, delivering technical services. He characterises the expertise of the QS as being “skilled in all aspects of the construction process and building life cycle” “able to manage cost efficiently, equating quality and value with individual client needs” and “must have strong financial, analytical, interpretive and teamwork skills”.

The SCSI publication *Your pathway guide to Quantity Surveying and Construction* (n.d.) includes a supplemental guidance section which outlines the profile of a newly qualified chartered quantity surveyor which sets out the minimum knowledge and experience

requirements of candidates seeking membership of the Society. It is considered useful to report these requirements here.

Candidates will need to gain knowledge and experience in all of the following elements:

- Estimating, which covers the preparation and reporting of cost estimates at the different stages of design.
- Cost planning covers an understanding of the cost planning process from setting the client's budget to design completion. It involves preparing, issuing and presenting cost plans and reports at the different stages of design.
- Procurement; covering developing a procurement strategy and including giving advice on the most appropriate procurement route to be adopted.
- Tendering deals with the implementation of a chosen procurement route through to the selection of the contractor/supplier and the establishment of a basis for contract.
- Contract selection involves giving advice on the most appropriate form of contract to be used. This includes main, sub and package contracts from the standard suites of contract commonly used within the industry.
- Contract procedures deals with the establishment of construction contracts and the mechanisms that are typically found within them. In particular it involves the understanding of these mechanisms and how they impact on the work of a quantity surveyor.
- Post contract cost control OR commercial management of contracts.
 - Post contract cost control is for surveyors working in a consulting environment in either the public or private sector and covers the financial management of a project during the construction phase (generally the post contract phase). It covers cost control procedures and reporting.

- Commercial management of contracts is for surveyors working in a commercial or contracting environment, it might also apply to surveyors working in management contracting and construction management. This covers the commercial management of contracts where the surveyor is working on the contracting or sub-contracting side of the profession, or where they are involved in fee based contracting such as construction management or management contracting.
- Quantification of works. This covers the measurement of works, and
- Construction technology. This covers an understanding of design and construction technology and methodology. It is considered that an understanding of this is essential in order to appreciate its effect on the cost of a project and to be able to quantify works in order to manage costs.

This knowledge and experience leads to the development of ‘core’ competencies which enables practitioners to provide reasoned advice (level 3 competence) on the following aspects of quantity surveying practice: contract practice, construction technology and environmental services, procurement and tendering, project financial control and reporting, quantification and costing of construction works and either commercial management of construction or design economics and cost planning. These competencies may be said to represent the ‘traditional’ skills of the quantity surveyor

In addition, quantity surveyors are required to demonstrate competence to enable them to apply knowledge and perform tasks (level 2 competence) relating to two optional competencies from the following list: capital allowances, either commercial management of construction or design economics and cost planning (whichever is not selected as a core competency), contract administration, corporate recovery and insolvency. due diligence, insurance, programming and planning, project evaluation, risk management, conflict avoidance, management and dispute resolution procedures, or sustainability. A number of these competencies may be viewed as specialisms.

Chartered quantity surveyors must also possess a wider range of professional skills and competencies. These competencies are a mix of the professional practice, interpersonal, business and management skills that are considered common to, and necessary for, all chartered surveyors. The minimum standards are:

- Conduct rules, ethics and professional practice at level 3,
- Client Care, Communication and negotiation and Health and Safety at level 2; and
- Accounting principles and procedures, business planning, conflict avoidance, management and dispute resolution procedures, data management, sustainability and team-working to level 1.

Providing a professional service may therefore be viewed as delivering technical skills competently and in a way society expects of professionals.

Conclusion

The role of the quantity surveyor continues to evolve in response to the ever changing business environment and rising client expectations. Cartlidge's (2006) portrayal of profession of the 1980s as a mainly technical back office operation offering a limited range of services has largely disappeared, particularly among the larger practices. He notes however that there will always be a demand for measure and value type services from traditional quantity surveying practices. Moss (2004) urges the profession to move forward, not slip back and to accept the challenge of change. He encourages quantity surveyors to adopt a proactive, cooperative approach to complement and strengthen the design and construction processes.

There is little doubt that various services currently provided by quantity surveyors will change, some dramatically so. Measurement, for example is almost certainly to become an automated function within a BIM model, however building models will still need cost management input from the QS in order to safeguard client interests.

The demise of the QS profession has been the subject of speculation for many years. Ultimately, however as long as clients need construction work to be done, there will be a

need for its financial management; this is the service that quantity surveyors currently, and will, no doubt, continue to provide in the future.

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