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Global professional standards for project cost management

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Abstract

This paper explores the need for global professional standards in the project cost management field. A range of global standards and guides have been developed for the project management profession as a whole but there have not been any developed specifically for project cost management (other than as a subset of project management standards). It will be argued that project cost management (be it Quantity Surveying, Cost Engineering, Project Controls or cost management carried out by Project Managers) is a specialist technical field that requires its own specific standards. The paper will examine the various national and regional professional standards that have been developed for the Quantity Surveying, Cost Engineering and Project Controls professions by various countries and professional associations around the world. It then examines the issues surrounding the lack of global standards for these professions and explores the benefits of developing over-arching strategies to produce global standards/programs. The paper then describes current initiatives to develop these specific global standards. This will include the International Construction Measurement Standard (ICMS) that is in the early stages of development. The research methodology underpinning this study comprises a review of professional standards around the world and interviews with practitioners and members of professional cost management associations within the International Cost Engineering Council (ICEC). The paper concludes with a range of recommendations and strategies to help address these issues.

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1. Introduction

The professional fields of Quantity Surveying, Cost Engineering, Project Controls or cost management (herein referred to under the one descriptor of Project Cost Management) have developed a range of national and regional professional standards over many years. However, the professions lack over-arching global standards that have been typically been developed for most other professional disciplines in the construction industry such as Architecture, Engineering and Project Management. On a broader scale, most major professional disciplines have global standards (accounting, business and the like).

The lack of global standards inhibits the development and identity of the project cost management profession on a global scale. Given the increasingly global nature of construction activity with an increasing number of contracting and consulting firms and developers operating in multiple countries this problem continues to build.

2. The Challenge

The Royal Institution of Chartered Surveyors (RICS), the European Committee of Construction Economists (CEEC) and the International Cost Engineering Council (ICEC) have recently undertaken research investigating the problem of a lack of global standards for the profession. The author has been a part of this research investigation. The following is drawn from a six paper series developed by this working group (ICMS 2015).

Surveys carried out by the RICS and CEEC of project cost management consultants in 40 countries have shown that:

- approximately 50% of countries did not claim any published standard elemental classification of building parts;
- in the absence of locally agreed standards, professionals frequently adopt ‘foreign’ standards or ad hoc in-house developed standards;
- there is no common way of expressing cost per m2, both in terms of the cost definition and the floor area (IPMS addresses the latter); and
- here are many countries where the quality of cost information, and data classification, falls short of what local professionals might wish.

Construction is a large contributor to world GDP and has a significant ‘multiplier’ effect on national economies. It is also an increasingly globally mobile industry, where investments in, and the implementation of, projects is carried out on an international basis. At a macro level, there is no uniform way for governments and markets to calculate construction output. For example, the United Nations produces a list of standard activities which comprise construction output (the ISIC –or International Standard Industrial Classification). The categories, however, are not complete and there is a need to revise them to reflect modern needs and practice. Government statistical agencies and industry commentators require improvements in the official definitions of construction output and the way data is presented.

Significant variations in the definitions and measurement of construction output are not only a concern in global and national accounting, but also on the demand (investment) and supply (consultants and contractors) side of the industry. This lack of comparability and consistency affects certainty, and therefore investment in, construction.

Feedback from professional organisations around the world has identified particular problems relating to different terminologies in use. This is particularly the case between the United States and Europe and between buildings and infrastructure.

3. Global Standards in Comparative Fields

The International Organization for Standardization (ISO) is the leading authority on global standards. They describe a standard as "a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose". More pointedly they note that "for business, (standards) are strategic tools that reduce costs by minimizing waste and errors, and increasing productivity. They help companies to access new markets, level the playing field for developing countries and facilitate free and fair global trade" (ISO 2015, p.1). They have a membership of over 164 national standard bodies throughout the world and publish over 19,500 standards.

The Organization for Economic Cooperation and Development and the US Department of Commerce have estimated that standards and related conformity assessment (checking that products and services measure up to standards) have an impact on 80% of the world's trade in commodities (ISO 2015). Perhaps more importantly major global entities such as the World Trade Organisation (WTO) require their members to use international standards where available. This helps to avoid the technical barriers to trade that can be caused by differing national or regional standards.

It is notable that there is no ISO Standard or any other global standards that relate directly to the core processes/services of the project cost manager. Whilst ISO standards exist in allied fields such as Risk Management, Quality Management and Environmental Management there are none that relate specifically to project cost management.

The project management profession has made tremendous progress in the development of international standards that the quantity surveying/cost engineering profession can learn from. Cost management and project management are clearly inter-related with Quantity Surveyors/Cost Engineers commonly carrying out project management services and Project Managers commonly carrying out cost management as part of their suite of services. However, cost management should be regarded as a specialist field requiring specialist standards and processes.

The first ISO standard in project management was published in 1997 and updated in 2003 – ISO 10006: Quality Management Systems – Guidelines for Quality Management in Projects. However, CBIS (2014) note that this standard was not widely adopted by the project management profession. The profession realised the issue with not having a globally recognised and used standard so embarked on a 5 year project to develop a standard with the input of 31 countries and 5 other countries observing the development. This culminated in the publication of the ISO 21500:2012, Guidance on Project Management in 2012 that provides project management principles and processes that have universal application (CBIS 2014).

The profession also has a range of other global standards outside the ISO gamut. The most prominent are the internationally recognised Project Management Body of Knowledge (PMBoK®) Guide and the Prince 2 (PRojects IN Controlled Environments) standards. There are no comparable international standards and/or guides for the project cost management profession.

The accounting profession provides a good example of global standards that have been developed and now form the basis for financial reporting in most countries around the world. The development of these standards importantly had the support of major global organisations such as the G20, World Bank, International Monetary Fund, the IOSCO, and IFAC (IFRS 2014).

The objective of the standards is to provide a common global language for business affairs so that company accounts are understandable and comparable across international boundaries. Most countries are now adopting these international standards in lieu of their own national standard. They enable accountants to prepare accounts using a

common international framework that can be understood across international boundaries (IFRS 2014). These standards have the added benefit of uniting the accounting profession through common goals and frameworks.

Global standards have also recently been developed in the property field. Methods used to measure property assets such as residential buildings, office buildings, retail centres and other income producing assets vary markedly around the world. This is particularly the case with floor area measurements and definitions. The IPMSC (2015) contend that there are numerous national and regional standards that suffer from professional inconsistency which has adverse ramifications particularly for international investors. These issues ultimately led to a landmark meeting at the World Bank premises in Washington in 2013 between major organisations who have developed their own measurement codes. With the support of major global entities such as the World Bank, the International Monetary Fund and the Building Owners and Managers Association (BOMA) these organisations formed a global coalition to address this problem and plan the development of a global measurement standard.

This coalition, titled the International Property Measurement Standards Coalition (IPMSC), has gained considerable momentum and is developing standards for property measurement (separately from construction measurement). The coalition comprises over fifty not-for-profit, standard-setting organisations and non-commercial firms. The coalition has developed a "top down, bottom up" strategy that will facilitate the collaborative development and adoption of a set of high level, principles based standards that will be recognized across the global community, while allowing locally based practices to continue. The IPMSC selected real estate experts from around the world to form its Standards Setting Committee (SSC) and develop global standards for property measurement. The SSC comprises 18 property experts from 11 different countries and 5 different continents. Between them, the Standards Setting Committee has the experience of property measurement methodologies in almost 50 countries. The SSC has recently published its first standard for Offices (Muse & Sullivan 2014).

These global initiatives in comparative fields provide important examples of what is possible for the development of global standards in the project cost management profession field.

4. National & Regional Standards in Project Cost Management

The most common standards developed for the Quantity Surveying profession are Standard Methods of Measurement for building work. Standard methods or measurement are also commonly prepared in many countries for civil engineering works. Quantity Surveyors generally adopt a Standard Method of Measurement that has been developed for their particular country, region or market sector. These standards are commonly adapted by Quantity Surveyors to suit their particular measurement approaches and or client/market requirements. An example is the adaptation of a standard method of measurement to a more concise/abbreviated form.

However, the Cost Engineering approach generally allows contractors to base their estimate on their individual methods of measurement and pricing – this often forms a distinct competitive advantage for contractors when bidding on projects. Whilst standard methods of measurement are used by many cost engineers they are not as widely used compared to the quantity surveying profession.

The first Standard Method of Measurement (SMM) of building works dates back to 1922. This was prepared by the Royal Institution of Chartered Surveyors (RICS) in the United Kingdom. The RICS have subsequently developed numerous versions of this standard. The RICS standards have been widely adopted by the quantity profession in Commonwealth countries. Mills et al. (2006) found that the RICS SMMs are the most widely used around the world for the building sector.

Nanil et al. (2008) reported on research that has shown that the use of SMMs is widespread. A global survey by the Building Cost Information Service (BCIS) identified 32 different SMMs in various countries (RICS 2003) while Mills et al. (2006) identified 44 SMMs used in 32 countries. This research also found that many SMMs are amended versions of the RICS SMMs.

The RICS have recently undertaken a major overhaul of their most recent version (SMM7) to address contemporary measurement issues. The following provides a description of this initiative (RICS 2015). A measurement initiative steering group was set up by the RICS to research the problems associated with the measurement of building works at all stages of the design and construction process. The steering group found that significant improvements where required and this led to the development of a suite of documents covering all aspects of the measurement and description of a building project – called the RICS new rules of measurement (NRM).

The NRM is a suite of documents issued by the RICS Quantity Surveying and Construction Professional Group. The rules have been written to provide a standard set of measurement rules that are understandable by anyone involved in a construction project. The rules provide essential guidance to all those involved in, as well as those who wish to be better informed about, the cost management of construction projects. Although the RICS new rules of measurement are principally based on UK practice, the requirements for a coordinated set of rules and underlying philosophy behind each volume have worldwide application. The specific methods are:

NRM 1: Order of cost estimating and cost planning for capital building works
NRM 2: Detailed measurement for building works
NRM 3: Order of cost estimating and cost planning for building maintenance works (RICS 2013)

There have also been measurement standards developed on a regional basis. This includes a European Code of Measure developed by the European Council of Construction Economists (CEEC 2015) and the Africa Standard Method of Measuring Building Work developed by the Africa Association of Quantity Surveyors (AAQS 2015).

The Association for the Advancement of Cost Engineering International (AACE) have developed a Total Cost Management Framework (TCM) that is being increasingly used in many countries. The AACE are based in the United States but have sections in many countries around the world. Whilst not strictly a measurement standard it provides a standard for the whole cost management process.

Examples of other common measurement standards include:

- Hong Kong Architectural Services Department- Standard Method Of Measurement For Building Elements (2001)
- Hong Kong Standard Method of Measurement for Civil Engineering Works, (1992)
- UK Institution of Civil Engineers - CESMM4 Civil Engineering Standard Method of Measurement (2012)
- New Zealand Standard NZS 4202:1995 – Standard method of measurement of building works
- Australian standard method of measurement of building works. - 5th ed., AIQS (rev 2012.

5. Future Strategies & Directions

5.1. Future Strategies

The following outlines some of the strategies being undertaken to move the project cost management profession forward.

5.2. Global Recognition

Global recognition from major global players such as the United Nations, the World Bank and the International Monetary Fund (IMF) form an important part in the development of global standards. Gaining recognition and

working with these types of organisations (and gaining their support) can provide the global platform for standards to be developed, recognized and adopted around the world.

The United Nations (UN) is an important organisation for the project cost management profession to be involved in. The following, drawn from Oladapo (2006), provides an overview of the importance of the UN to the profession. The UN Economic and Social Council (ECOSOC) coordinates the economic and social work of the UN and its family of organisations. It plays a key role in fostering international cooperation for development, consults with Non Government Organisations (NGOs) thus maintaining a vital link between the UN and civil society. ECOSOC is the central forum for discussing international economic and social issues and for formulating policy recommendations. ECOSOC oversees several programs, funds and other bodies within the UN. UN programs, funds and agencies have regional/sub-regional and in several cases national offices all over the world. Some of the bodies relevant to the project cost management profession are: UN-HABITAT (United Nations Human Settlements Program), UNEP (United Nations Environment Program), UNDP (United Nations Development Program), UNCTAD (United Nations Conference on Trade and Development) and ITC (International Trade Centre). The UN ECOSOC also works with specialised global agencies such as the World Bank Group, the International Monetary Fund (IMF), the United Nations Industrial Development Organization (UNIDO) and the World Trade Organization (WTO).

Three major project cost management related associations have achieved Non-Government Organisation (NGO) consultative status. ICEC has had ECOSOC Roster Consultative Status since 2006. FIG also has this Roster Consultative Status (since 1970). The RICS have had Special Consultative Status since 2003.

This provides a solid platform to build on for the profession. ICEC is particularly well placed to make positive contribution for the profession and to become influential in the UN system. The roster consultative status provides ICEC member associations and their members the opportunity to help formulate policies for UN Programs in social, economic and sustainable development. This can be achieved through conferences convened by the UN at national, regional and international levels. This may include discussing and developing methods for providing global and local solutions that will lead to cost and value effectiveness in UN programs and activities. It also provides an avenue for ICEC member association individual members and firms to get involved in UN projects and programs (Oladapo 2006).

5.3. Central Product Classification (CPC) Scheme

ICEC, PAQS, the RICS and other kindred associations are currently collaborating to gain official recognition of the Quantity Surveyor/Cost Engineer within the UN and the World Trade Organisation. Quantity Surveying and Cost Engineering are not currently not recognised as professionals by the Central Product Classification (CPC) scheme of the World Trade Organisation (WTO)/Economic and Social Council (ECOSOC) of the United Nations. The CPC scheme applies to tradable and non-tradable goods and services. The CPC classifies products based on the physical characteristics of goods or on the nature of the services rendered within the global environment (UN 2012).

The scheme is very influential and is critical for the global identity of a profession. The relevant section of the CPC scheme for cost management professionals is Section 8: Business Services; Agricultural, Mining and Manufacturing Services. Within this section the most relevant group is Group 867: Architectural, Engineering and Other Technical Services. This group is currently divided into the following classes: Architectural services, Engineering services, Integrated engineering services, Urban planning and landscape architectural services, Engineering related scientific and technical consulting services and Technical testing and analysis services (UN 2012).

Project Cost Management (Quantity Surveying and Cost Engineering) are not on this list but should be. International recognition in this CPC scheme is important for the global growth and development of the profession. Collaborative work continues amongst the above-mentioned associations to achieve this.

5.4. ISO Cost Management Standard

ICEC, PAQS, the RICS and other kindred associations are currently collaborating to gain official recognition of the Quantity ICEC, PAQS, the RICS and other kindred associations are also currently collaborating to establish a global International Standards Organisation (ISO) Cost Management standard. A global standard will provide significant recognition for the profession and would provide the basis for institutionalising the benchmarks for the profession based on mutually recognised international standards and best practices.

The project cost management profession has much to learn from the project management experience in the development of these standards. ICEC, PAQS, the RICS and kindred associations are currently working together to map out a strategy to develop a cost management standard. This collaboration extends to the International Project Management Association (IPMA). The current strategy is looking at joining the project management community to develop a Cost Management Standard as a subset of the ISO project management standard (i.e. to form one of the suite of subset standards). The prevailing thought is that this approach would be more practical and would obviate the need to 'reinvent the wheel'.

5.5. International Construction Measurement Standard (ICMS)

The RICS, CEEC and ICEC have laid the initial foundations for the development of an international construction measurement standard and have been joined by the International Cost Engineering Council (ICEC) in support of the venture. These organisations and a number of other national professional associations are in the early stages of discussion for the development of a global International Construction Measurement Standards (ICMS). The first formal meeting for the development of the standard was recently held in June 2015 at the International Monetary Fund (IMF) head office in Washington DC in the United States.

The purpose is to develop international standards are recognized by world bodies and national governments. This would be ideally similar in character to the International Financial Reporting Standards (IFRS) outlined earlier that is universally adopted by the accounting profession and recognized by all major corporations and governments around the world. The objective is for professional associations to lead the development of common, internationally agreed standards. Working as a coalition of equals, it is planned that these professional bodies will have the authority and ability to drive forward common rules of engagement which practitioners will be responsible for delivering around the world (ICMS 2015).

Although the detailed solution cannot be determined until the coalition is established, some principles have emerged through preliminary discussions. Key characteristics of the standard will be as follows:

- High-level, over-arching and principles-based – a first step;
- Covering buildings and infrastructure and capital cost and whole life cost;
- Defining construction cost;
- Related to the International Property Measurement Standards (IPMS) in terms of expressing cost per m2, but acknowledging the construction process; and
- Connected to emerging BIM classifications (ICMS 2015).

The proposal is to implement a similar strategy to that adopted by the International Property Measurement Standards Coalition (IPMSC) described earlier in this paper with the focus on collaboration with, input and support from all relevant project cost management organisations around the world.

6. Conclusion

Collaboration between the project cost management profession and their representative associations is the key for the global development of the profession. There are now a number of global/regional professional associations that represent the interests of project cost management professionals. The key associations are the International Cost Engineering Council (ICEC), the Royal Institution of Chartered Surveyors (RICS), the Association for the Advancement of Cost Engineering International (AACE International), the International Project Management Association (IPMA), the International Federation of Surveyors (FIG), the African Association Of Quantity Surveyors (AAQS, the Pacific Association of Quantity Surveyors (PAQS) and the European Council of Construction Economists (CEEC). There are also well over one hundred national associations representing the profession around the world. The proposed International Construction Measurement Standard (ICMS) which is attempting to bring all of these associations together for a common purpose is hopefully the first step in the development of a range of much needed global standards.

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