

2019-3

## Standardisation in Construction Cost Control

Charles Mitchell

*Technological University Dublin*, [charles.mitchell@tudublin.ie](mailto:charles.mitchell@tudublin.ie)

Follow this and additional works at: <https://arrow.tudublin.ie/beschreoth>



Part of the [Business Commons](#), [Engineering Education Commons](#), [Other Engineering Commons](#), and the [Risk Analysis Commons](#)

---

### Recommended Citation

Mitchell, C. (2019) Standardisation in Construction Cost Measurement, 2019., Technological University of Dublin, School of Surveying and Construction Management.

This Other is brought to you for free and open access by the School of Surveying and Construction Management (Former DIT) at ARROW@TU Dublin. It has been accepted for inclusion in Other Resources by an authorized administrator of ARROW@TU Dublin. For more information, please contact [arrow.admin@tudublin.ie](mailto:arrow.admin@tudublin.ie), [aisling.coyne@tudublin.ie](mailto:aisling.coyne@tudublin.ie), [vera.kilshaw@tudublin.ie](mailto:vera.kilshaw@tudublin.ie).

# Standardisation in Construction Cost Control (A Method of Approach)

C. Mitchell  
charles.mitchell@dit.ie

## The Construction Sector

The construction sector consists of the on-site construction assembly including repair maintenance works. This includes the site preparation, construction of all building structures and infrastructure up to and including building decoration. This also includes the supply chain of construction related products and raw materials. Furthermore the definition also includes the professional services such as management, design and facilities management.



## The Origin of the Quantity Surveyor

The quantity surveying profession came into existence in the late 18<sup>th</sup> century due to the increase in building works and the clients' dissatisfaction with the method of settling costs. The treat of invasion to England by France during the Napoleonic Wars (1803-1815), saw the urgent construction of military barracks to house large garrisons of British soldiers prior to transportation across the English Channel. The urgency reduced the period for design and tendering the projects. It was agreed to value the cost of construction by a "settlement by fair valuation based on measurement after the completion of the construction works". This led to the move away from the trade based contracting system and the introduction of the single builder or group of tradesmen "contracting in gross".

1828 saw the use of separate trade contracting discontinued by the British Government for public contracts. General contractors came into being during the Industrial Revolution (1760-1840). The surveying profession was recognised in 1868 with the establishment of the Royal Institute of Chartered Surveyors (RICS)

## Cost Control in Construction

More recently the quantity surveyor has been recognised for the profession's role in costs management. The role falls to different professions depending on the country and type of project. Organisations such as the Construction Economists of the European Union (CEEC) recognise the "cost engineer" and "construction economist" in this function also.

## Use of Bills of Quantities (BoQ)

Various formats for BoQ exist dependant on industry sector and geographical location. The function however is the same world wide – to provide a uniform means for pricing the works by all tendering parties

The content of a Bill of Materials (BoM)		PROJECT BARRACKS - ESTIMATED QUANTITIES			
		QTY	UNIT	PRICE	£
1	PRELIMINARY WORKS: CONDITIONS				
1.1	ABC Contractors general cost items: Management and staff				
1.2	Site establishment cost				
1.3	Provision of general site supervision and control				
1.4	Project Manager	1000	week	170.00	170000
2	ABC Contractors general cost items: Services and facilities				
2.1	Provision for temporary services and facilities				
2.2	Mobile site office	1	unit	220.00	220.00
3	ABC Contractors general cost items: Temporary works				
3.1	Supplying and erecting of temporary works				
3.2	Independent scaffolding	4000	m <sup>2</sup>	10.00	40000
4	Temporary concrete				
4.1	Supply of concrete for temporary works	1000	m <sup>3</sup>	2.00	2000
5	ABC Contractors general cost items: Associated with the works				
5.1	Cost of construction	1	unit	100.00	100.00
5.2	General construction (including supply)	1	unit	200.00	200.00

## Elemental Standards for Cost Control in Construction

In the 1970s cost planning came to prominence. It was seen as an attempt to introduce more rigour and accuracy in the pre-cost contract process. At roughly the same time the Irish Government introduced the National Standard of Building Elements and Cost Control Procedures. However, nearly 40 years later research by BCIS (2009), shows 50% of countries surveyed not having a published elemental standard or using "ad-hoc" or "foreign" standards. No common expression for cost per M<sup>2</sup> existed in terms of cost definition and floor area. The level of cost information and data classification falls short of what many professionals would welcome in many countries.

## Construction as a measure of Economic Growth

Records from the Central Statistics office (CSO) show that since 2015 that the Irish Gross National Product has increased and with it the gross value of construction output. As seen in the Production Value Index for Ireland – Source CSO (2019)



Category	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018
All building and construction	125.5	149.6	163.8	170.7	144.6	181.7	197.1
Building (excluding civil engineering)	148.3	173.4	188.0	196.7	170.3	217.6	219.4
Residential building	152.1	188.2	212.6	207.8	187.6	238.6	238.3
Non-residential building	145.0	160.5	166.5	187.0	155.2	199.3	203.1
Civil engineering	82.3	104.5	117.9	121.2	95.8	113.5	154.8

CIOB (2015) note that the "China, US and India will account for 57% of all global construction growth in the construction and engineering market by 2030 – underpinning the economic development of the three countries that account for over a third of the world's population and economic output"

## The need for a Global Standard

ISO (2015) define standards are "strategic tools that reduce cost by minimising waste and errors, and increasing productivity". The Economic Commission for Europe (2002) noted the need for standardisation to address market needs. The World Trade Organisation (WTO) (2013) "obliges governments to use international standards as a basis for regulation".

## The International Construction Measurement Standards (ICMS)

No one single method of measurement is used by those responsible for the preparation or recording of construction costs. The standard methods of measurement are generally used in the compilation of BoQ.

Currently more than 45 professional bodies form the ICMS Coalition. The Standard Setting Committee of the ICMS are responsible for the development of the new International Cost measurement Standard. The first edition was published in 2017. The 2<sup>nd</sup> Edition is currently in public consultation and addresses Life Cycle Costing. The 3<sup>rd</sup> Edition will look at integrating Building information Modelling (BIM) into ICMS.

**ICMS** INTERNATIONAL  
CONSTRUCTION  
MEASUREMENT  
STANDARDS