ICMS INTERNATIONAL CONSTRUCTION MEASUREMENT STANDARDS

International Construction Measurement Standards: Global Consistency in Presenting Construction Costs

Responses to consultations and basis for conclusions

July 2017

Summary

The International Construction Measurement Standards (ICMS) have undergone extensive global consultation. Following the preparation of a draft by the Standards Setting Committee (SSC) in August 2016, ICMS had one private and two public consultations.

Statistical summaries of the responses received for each consultation were as follows:

- Private consultation – September to October 2016:
  - The ICMS initial draft was sent to 250 global professionals and comments were received from over 50.
- First public consultation – December 2016 to February 2017:
  - Downloads (PDF): 1254
  - Participants: 33
- Second public consultation – March to May 2017:
  - Downloads (PDF): 623
  - Participants: 63

All comments received were considered and reviewed by the SSC in their regular meetings. It was not possible to respond to every comment received, therefore, a summary of the key points and decisions are recorded in this basis for conclusions. A comprehensive list of actions taken by the SSC following comments received after the second public consultation is included in Appendix A.

Generally, comments that were received fell into one of the following four categories:

- taxonomy and classification
- composition of Cost Groups and Cost Sub-Groups
- content of the values and attributes or
- detailed comments on definitions and wording.

Taxonomy and classification

The aim of ICMS was to be as simple as possible, while maintaining a useful level of detail when comparing costs across different markets. Some comments related to the fact that the classification scheme was not sufficiently definitive and that large, multiple-category projects did not fit easily and clearly into the taxonomy described. This led to some revision of the classification to allow for 'sub-projects' and changes to the definitions to aid clarity. The aim was to maintain simplicity in the number of hierarchical levels to ease subsequent data collection and reduce the potential for inconsistency.

Composition of Cost Groups and Cost Sub-Groups

The purpose of ICMS is to harmonise different national standards at high level, therefore, many comments were received relating to discrepancies from accepted national practice. This covered two principal areas. Firstly, the ICMS cost grouping does not follow elemental cost planning methods used for buildings, which are used in some parts of the world. Secondly, to connect buildings and civil engineering, ICMS adopted a structure that differs from conventional infrastructure cost headings. In both cases, the SSC considered that mapping between these different structures was possible, particularly as data collection becomes more flexible with enhanced technologies. In fact, since ICMS use a structure based on key construction design disciplines, it is more likely to align with data from building information models and avoid the problems associated with separate design and cost classifications.

Content of the values and attributes

Values and attributes were included in ICMS to describe the key qualitative and quantitative cost drivers for each type of project or sub-project. Comments were received from sector specialists that allowed important refinement of these parameters. Again, the tendency was for the comments to add extra layers of detail, which, in some cases, the SSC felt would be counter-productive in the collection of data. One example was currency conversion which may have led to unnecessary complexity – ICMS simply require reporting in the currency in which the cost is paid and any conversion will rely on subsequent analysis of the data. Since ICMS allow the reporting of costs through the project life cycle, comments were received on how cost base dates, inflation and the like would be accommodated. After consideration, it was decided that the fundamental parameters relating to project stage, base date and inflationary composition of the costs were the key minimum requirements.

Detailed comments on definitions and wording

While it was recognised that many definitions of terms exist in other international standards for construction, and some of these are referenced in ICMS, the overriding aim of the SSC was to use simple, plain, professionally-recognised language that can be easily translated and understood. This is particularly important in a cost standard that transcends building and civil engineering, since terminology in these sectors is not consistent and mitigates against common approaches. Many of the detailed comments received were useful in correcting inconsistencies and anomalies and generally ensuring a clearer document.

Appendix A – Comments received during the 2nd consultation that led to changes to the draft Standard

Comment number	Reference to 2nd consultation draft	Comment received	Description of change
2	Page 4	'ICMS requires a cost report to include both GEFA (IPMS 1) and GIFA (IPMS 2) measured in accordance with the rules set out in IPMS.' This does not appear to be strictly true and would draw your attention to specific comments relating to the use of IPMS in cost benchmarking later in this document.	Add GEFA and GIFA to definitions.
4	Page 5	The Exposure Draft states that: 'The aim of the SSC is not to replace existing local standards, but to provide a consistent framework into which data generated locally can be allocated for the purposes of comparison.' The Building Cost Information Service (BCIS) would suggest that the word 'international' is inserted in this statement so it states that it provides an internationally accepted framework for reporting the costs, which have, in some cases, already been reported per the local standard or legal requirements.	Add 'international'.
5	Page 5	The Exposure Draft states that: 'Thus, the types of Project are compatible with the United Nations International Standard Industrial Classification of all Economic Activities. The Cost Sub-Groups are compatible with the elements in ISO 12006 *Building construction – Organization of information about construction works – Part 2: Framework for Classification*, and can be adapted to be compatible with most other breakdown systems such as Uniclass or Omniclass'. In our opinion this is not strictly true as incompatibility with UNISIC still exists and moreover we don't think the definitions at Level 3 are consistent with the usual interpretation of the ISO definition of Element 'Constituent of a construction entity (3.4.2) with a characteristic function, form, or position'.	Insert the phrase 'generally compatible' in both sentences.
10	Page 8	In the UK, value added tax (VAT) is commonly charged on goods and services. UK construction cost analyses exclude VAT. In the definition of Capital Construction Costs, can clarity be given on VAT and equivalent taxes in other countries.	Definition of Taxes and Levies already provided. If a tax is to be excluded by local practice it can be stated as 'Excluded'.
21	Page 13, 1.07 External and ancillary works	Further clarification is required in this section and would suggest that the following additional text is inserted 'Where projects include more than one sub-project, exclude the cost of sub-project categories that are analysed separately'.	Clarifying note to be added.
22	Page 13, 1.06 and 1.07	What is the intended difference between 'constructed asset' in 1.06 and 'construction required to fulfil the primary function of the Project or Sub-Project' in 1.07? See query on definition of 'constructed asset' on page 7 above.'	Use 'constructed asset' throughout. Presume constructed asset includes any external works connected to it.
23	Page 14, Cost base date	The Exposure Draft should include a definition of 'Cost base date' in 1.1. In this instance, it seems to apply to the date at which the currency conversion occurs elsewhere, 'base date' is used to mean the date at which an estimate was calculated. See general notes in Appendices. For very large projects with multiple sub-projects, there may be one base date per sub-project if the tender dates are different.	Include base date and the date of any currency conversions in the attributes and include definitions in the definitions section.
27	Page 15, Status of cost report	Add 'Agreed price at commit to construct, e.g. accepted tender, target cost, etc.'	Values changed to 'pre-construction | at tender | during construction | actual costs of construction post-completion'.

Comment number	Reference to 2nd consultation draft	Comment received	Description of change
29	Page 17	IPMS 1 and GEFA and IPMS 2 and GIFA are not direct alternatives and this also needs explanation.	Add GEFA and GIFA to definitions.
30	Page 17	Definition of Buildings. Are they all for persistent daily use? Examples not in persistent use may include structures such as tombs and mausoleums. Isolated military or scientific buildings may also not fall within this definition.	Delete 'for persistent daily use'.
31	Page 18, Roads and motorways, Project Complexity	To be consistent, the wording should be the same as for Railways, i.e. 'number of crossings over water, roads, other railways, valleys and the like'.	Ensure consistency in description.
32	Page 19, Railways	It is assumed that elevated railways will be treated the same as elevated roads so the Exposure Draft should include a note that 'Elevated railways as an integral part of bridges shall be included in Bridges'. If this is not the case, there needs to be some explanation of why they are treated differently.	Distinguish between elevated railways and railway bridges. Add functional type for light railways.
33	Page 19, Railways, Project complexity	Add 'number of crossing under roads, railways, waterways and the like.'	Change as suggested.
34	Page 20, Bridges, Project complexity:	Add 'total number of abutments/piers/towers.'	Add a value for total number of piers and towers and a separate item for the number of piers and towers in water.
35	Page 22, Waste water treatment works, Principle design features	It is not clear what is meant by 'modules', 'processes' and 'major structure'. Does each module have a process and a structure? This needs clarifying.	Replace 'modules' with 'processes' and delete number of processes from 'complexity'. Standardise attributes of waste water treatment works and water treatment works.
36	Page 23, Water treatment works, Principle design features	It is not clear what is meant by 'modules', 'processes' and 'major structure'. Does each module have a process and a structure? This needs clarifying.	See comment number 35.
38	Page 24	The definition of pipelines should include finely divided solids 'A series of pipes and tubing for the transfer of liquid, gas or finely divided solids'. This would expand the definition to include pipelines for ash, cement and other bulk powders.	Add powders.
39	Page 25, Well Drilling	Well drilling is an activity. All the other 'Projects' are the name of the resultant entity, it should be 'Wells and boreholes.'	Change 'Well Drilling' to 'Wells and boreholes'.
45	Page 31, (a)	It will, in some cases be necessary to permit multiples of the accepted alternative terms. An example is the classification of Tunnels or Bridges which may include more than one use – road and rail. Buildings may also have several functional spaces within them. It would be helpful to users of the Standard to have an indication where multiple uses of a single attribute are permitted or expected. This would also help system implementers to develop compatible data structures.	Make clear in the notes that more than one pre-set value can be used.

Comment number	Reference to 2nd consultation draft	Comment received	Description of change
46	Page 31, (d)	It may be worth considering a limit (possibly expressed as a percentage of the Project Total) on the proportion of costs which can be expressed as 'All Other Costs'. There may be a concern that some users would use this category to produce a seemingly compliant analysis at the expense of transparency, which is a primary requirement.	All Other Costs should not be more than 5% of the relevant Cost Group.
51	Appendix A	It appears to be written in the context of a design solution and is not therefore a good example, unless the context is stated. Would this and other examples be better located on the website with the WBS mappings rather than part of the Standard? Much of the work listed under 1.03 Structure might not be load-bearing in other design solutions, in the sense of designed to carry the load of the building and will need to be repeated under 1.04 e.g. staircase, upper floor beams and slabs, roof beams and slabs, etc. However, if the interpretation of load-bearing is designed to carry on imposed load then it applies to most parts of a building from cladding to floor tiles. If this is included in the Standard it needs detailed scrutiny is '1.05.020.060 uninterrupted power supply' meant to be different from '1.05.130 ... uninterruptible power supply'.	Define the scope of costs in 'Structure' better by stating that this includes non-load-bearing components forming an integral part of composite load-bearing work. Distinguish between the two references to UPS in electrical services and generators (perhaps delete UPS after generators and assume any UPS cost will be placed in electrical services).
52	Appendix B	Bridges: We suggest including 'Piers and towers' and 'Suspension systems' in substructure, but if they are to be included in structure then 'Bearings' which occur between the piers and the deck would also need to be in superstructure.	Move 'Bearings' to 'Structure'.
72	Page 12, Figure 2: ICMS Hierarchy	For purposes of clarity and reinforcement, consider inserting the Levels in the diagram.	Insert Levels in the diagram.
73	Pages 12–14, Table 1 read in conjunction with Appendices A, B and C	Table 1: It is not clear from the table which are Level 2 and Level 3 costs. Although it is colour coded, it could be made clearer to the user. Table 1: 2nd column: Consider inserting 'cost codes' instead of the phrase 'Item'. A codification framework is indicated in Appendix A, B and C. However, it would be of benefit if the codification framework were explained in the main body of the Standard.	Insert 'cost codes' instead of 'Item' in both Table 1 and Appendices.
74	Pages 12 to 14, Table 1 – Read in conjunction with Annexes A, B and C	A single column showing the cost code for each Cost Group, Cost Category and Cost Sub-Category will benefit users. At present, the presentation of cost code information is different for each table. Approach needs to be standardised.	Insert brief paragraph in the Standard explaining the use of cost codes.
75	Page 13, Table 1	Is there no item 1.10?	Correct numbering.
76	Page 13, Table 1	Item 1.11. As defined – Where? Insert cross reference to location of definition on Page 9. Or repeat definition in table. If the scope of 'Taxes and Levies' is defined in Table 1, does it also need to be included in 1.2 Definitions? What would help the user most?	State 'as defined in Section 1.2'.

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77	Page 13, Table 1	Item 2: Associated Capital Costs In the UK, it is unlikely that the cost manager will obtain access to non-construction related costs. How is this to be addressed by the cost manager?	On the 'Land Cost' issue: continue to include it, but elevate it one hierarchical level. This is based on feedback from some early adopters of ICMS (ARUP) who say it has allowed a conversation about ICMS with their clients.
79	Schedule 1, Page 15, Project Attributes and Projects Values table	Report: Column 1: Project Attributes Brief description of the Project: Principal function: What does this mean? What information is to be inserted in the Project Values column?	Change to 'main Project type (principal Sub-Project)'.
84	Schedule 1, Page 16, Project Attributes and Projects Values table	Site: Column 2: Project Values Procurement: 'Joint venture Constructor from another market': What does the term 'market' mean in this context? Another Constructor from another country? Clarity needed.	Change to 'Joint venture foreign Constructor'.
86	Schedule 1, Page 17, Buildings table	Works: Nature: Is an 'extension' classified as 'new build'? If not, extension needs to be addressed in definition. Both 'horizontal' and 'vertical' extensions need to be considered.	Clarify that 'new build' includes 'major extensions'.
89	Schedule 1, Page 17, Buildings table	Works: Principal design features: Degree of prefabrication: Information to be stated does not correlate with the question. As it stands, the information requested appears to be meaningless. Should the response be based on the proportion of the Works that is (or is to be) prefabricated? Either as a percentage of 'Total Project Cost' or of GIFA? A secondary question might relate to the predominant method of prefabrication used.	Change the values to 'less than 25% | up to 50% | up to 75% | up to 100%, of Capital Construction Costs'.
92	Schedule 1, Page 17, Buildings table	Project Quantities: Site area: Reads 'Site area (within lot boundary of the building site, excluding […])'. What does 'lot' mean? For clarity, should the method of quantification read: 'Site area (the area enclosed by the boundary of the building site, excluding […])'?	Change 'lot' to 'legal boundary'.
93	Schedule 1, Page 17, Buildings table	Project Quantities: Functional units: What does the term 'occupancy' mean in this context? Does 'occupancy' not come under 'others stated'? Clarity needed.	Change 'occupancy' to 'number of occupants'.

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101	Schedule 1, Page 21, Tunnels table	Works: Dimensions: How do you specify the dimensions of tunnels when they are of varying cross-sectional dimensions? Clarity needed.	Clarify that a range of cross-sectional areas can be provided. If each different diameter is a different Sub-Project this may create significant added complexity.
110	Schedule 1, Page 28, Refineries table	Works: Environmental grade: Status: What is the status classification for works that do not achieve the targeted environmental grade?	Allow option of stating 'none'.
113	Appendix B, Page 32, Cost Sub-Groups: Civil Engineering Works table	A footnote stating that the delineation between substructure and substructure is shown in Schedule 2 would aid the user.	Include reference to Schedule 2 in the text relating to the use of the Standard.
116	Appendix B, Pages 35 and 36, Cost Sub-Groups: Civil Engineering Works table	Preliminaries | Constructor's site overheads | general requirements: The following preliminaries items do not appear to have been addressed: • site security • temporary works (e.g. hoardings, fences, gates, barriers, access scaffolding, etc.) • brought-in services (e.g. catering, EDMS; web-based document management systems, etc.) • surveys and inspections • guarantees and warranties and • fees and charges paid by the Constructor (building control fees, scheme registration fees, license charges, etc.).	Amend the Cost Sub-Groups but keep them as broad and few as possible.
125	General	Editor to proofread and address spelling and grammatical errors throughout the document.	Editor will address.
126	1.2 Definitions	Associated Capital Cost The ground costs or Site Acquisition Costs may be dissected from this cost group for two reasons: 1. Benchmarking could be easier if ground costs and (other) Associated Capital Costs have their own group. (The relation between the size and value of the building and the size and value of the ground is not very close.) 2. The characteristic life cycle of land is very different from the characteristic life cycle of a building, let alone the life cycle of associated costs like consulting costs. For future use in life cycle approach this should be considered. Wording proposed: 'Capital cost = Site Acquisition + Capital Construction Cost + Associated Capital Cost'.	See comment number 77.