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# Data, Cost Predictions, and International Standards—Case of International Construction Measurements Standards (ICMS)

Wednesday,  
January 9

Session WE2A:  
Working Smarter:  
Metrics for Project  
Delivery

Anil Sawhney, PhD FRICS FHEA  
Director of the Infrastructure Sector





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Our industry is global;  
our standards are not



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Major project delivery is increasingly  
multi-national and multi-disciplinary



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Collectively, our profession  
can deliver the solution...





# INTERNATIONAL CONSTRUCTION MEASUREMENT STANDARDS

International standards and data for a global construction industry



## COALITION ORGANISATIONS

The ICMS Coalition is a rapidly growing partnership of leading organisations from every continent in the world, committed to producing and supporting one shared standard for construction measurement. Starting with meetings at the International Monetary Fund in May 2015, the Coalition created an independent standard setting committee and committed to the vision of one shared and international standard.

## STANDARDS SETTING COMMITTEE

The Standards Setting Committee comprises of 27 independent experts, from 17 different countries. They've been appointed by the coalition to draft and consult on the new International Construction Measurement Standards.

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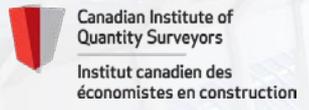
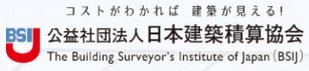
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**ICMS Coalition**





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**ICMS** INTERNATIONAL  
CONSTRUCTION  
MEASUREMENT  
STANDARDS

# International Construction Measurement Standards: **Global Consistency in Presenting Construction Costs**

International Construction Measurement Standards Coalition



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# What are the aims of ICMS?

- Construction cost to be consistently and transparently benchmarked
- Causes of difference in costs between projects can be identified
- Properly informed decisions on the design and location of construction projects to be made
- Data to be used with confidence for project financing & investment, programme and decision-making and related purposes





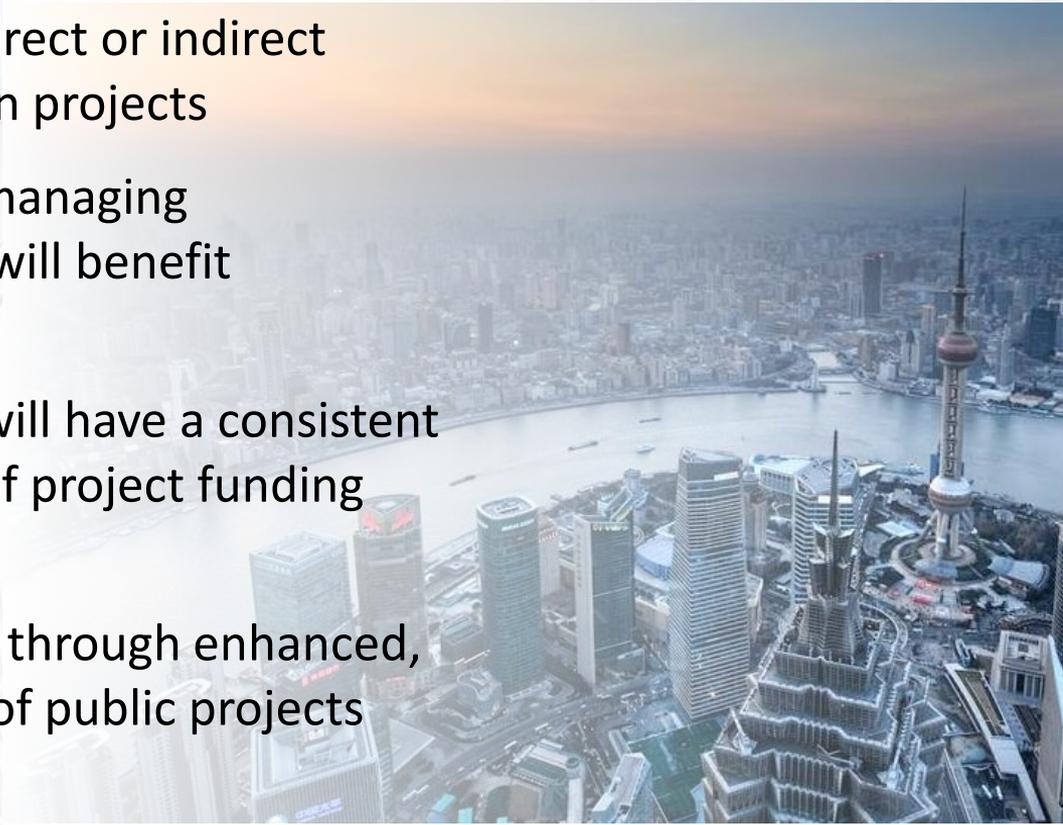
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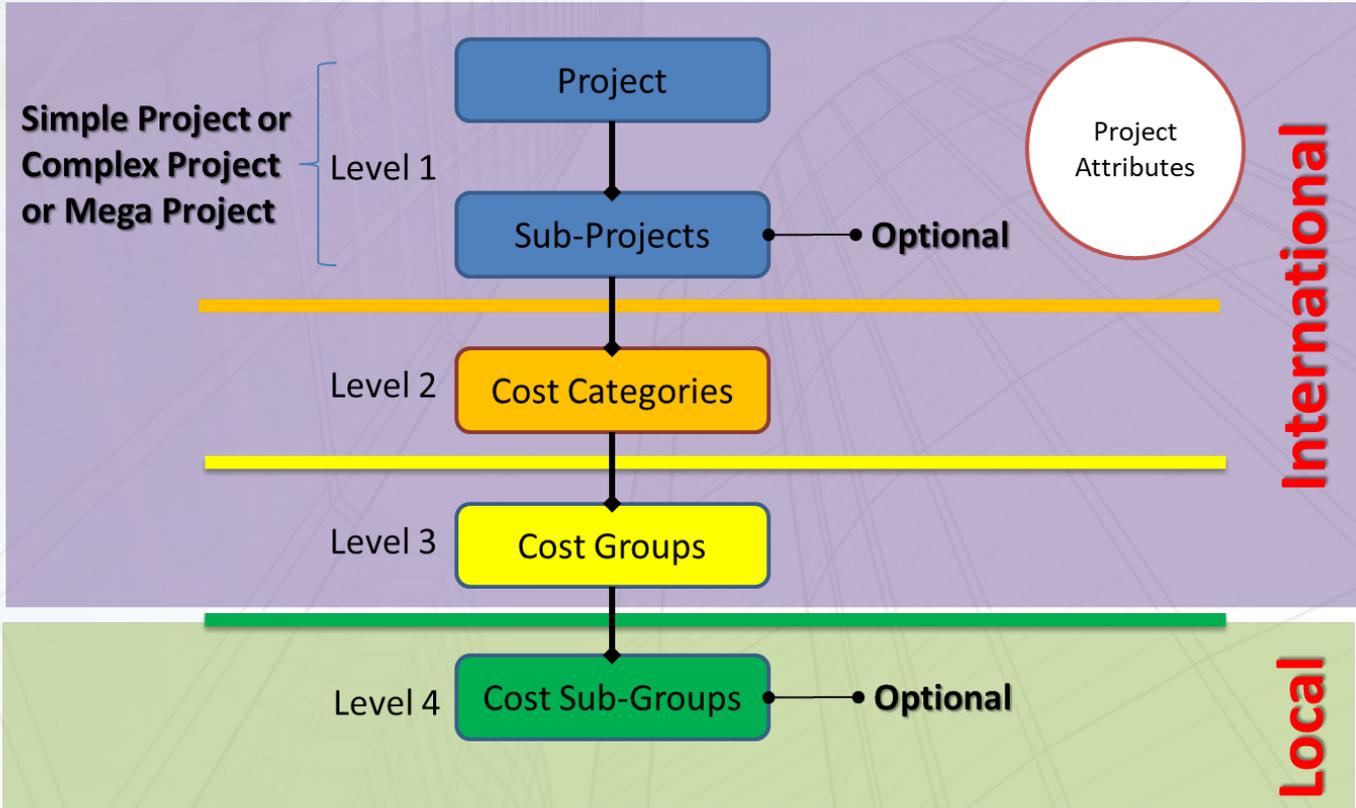
# Who will benefit from ICMS?

- Any party that has a direct or indirect interest in construction projects
- Those investing in or managing construction projects will benefit significantly
- Financial institutions will have a consistent basis for assessment of project funding requirements
- The public will benefit through enhanced, prudent assessments of public projects



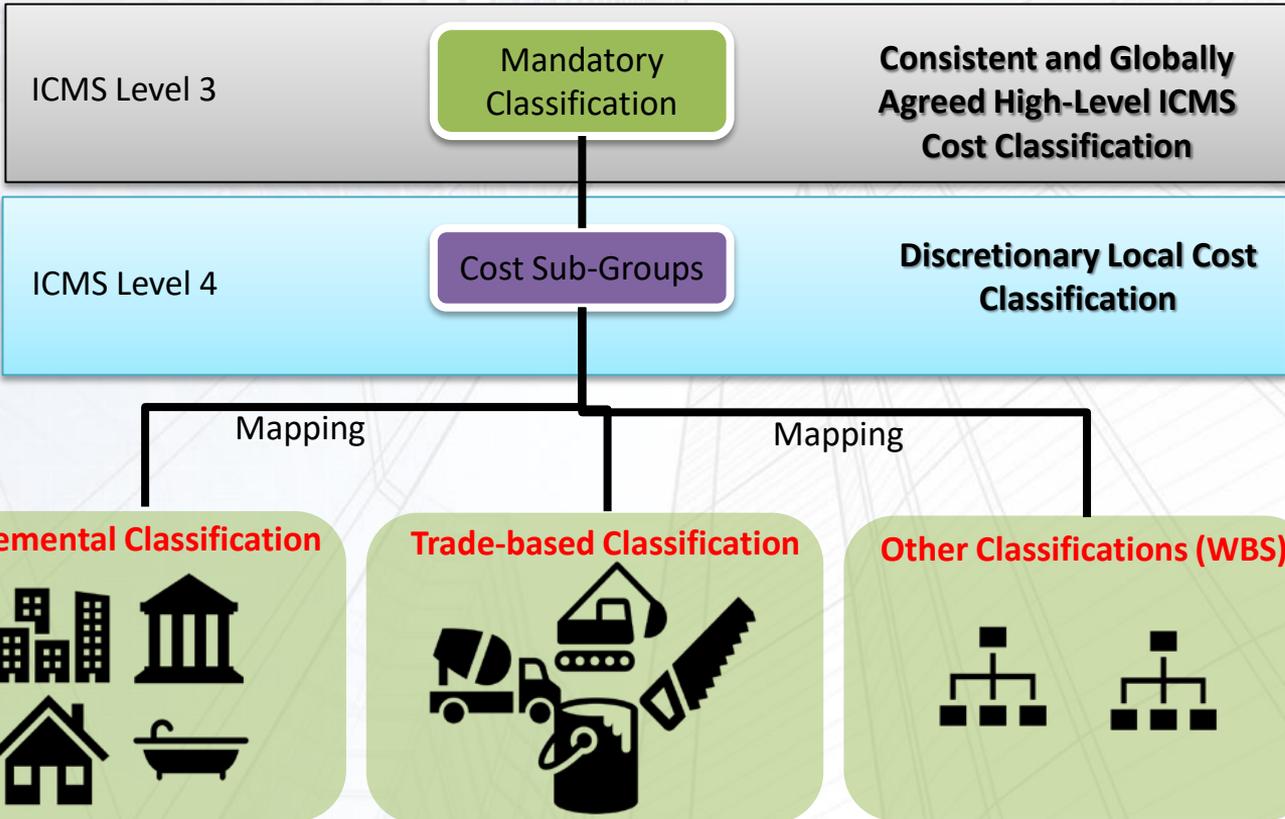


# Core Classification in ICMS





# Mapping Local to International





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# ICMS Mapping

- Australian and New Zealand Standard Method of Measurement (ANZSMM)
- Network Rail's Rail Method of Measurement (RMM)
- ICE Civil Engineering Standard Method of Measurement – CESMM
- CSI MasterFormat
- UniFormat
- CIQS Elemental Cost Classification
- Manual of Contract Documents for Highway Works, Volume 4 - Bills of Quantities for Highway Works, Section 1 Method of Measurement for Highway Works (MMHW)

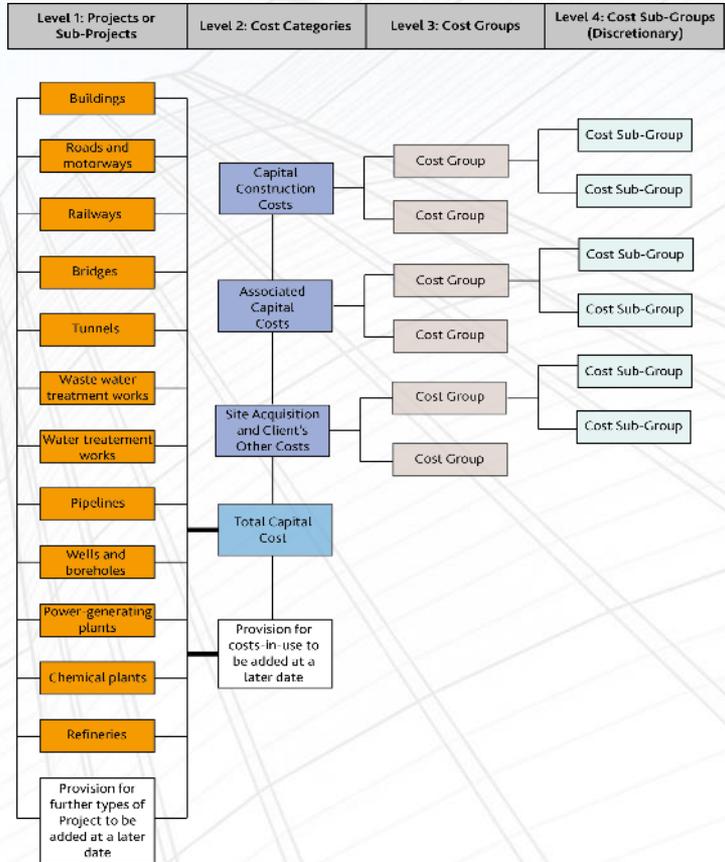


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# What do the standards cover?

- High-level cost classification
- Buildings and civil engineering
- Definitions, inclusions and exclusions
- Four level taxonomy
- Key cost drivers





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# ICMS Taxonomy





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# ICMS Level 1

LEVEL 1: PROJECT AND SUB-PROJECTS						
Project Types in ICMS						
Buildings	Roads and motorways	Railways	Bridges	Tunnels	Waste water treatment works	Water treatment works
Pipelines	Wells and boreholes	Power-generating plants	Chemical plants	Refineries	Dams and reservoirs	Mines and quarries



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# ICMS Level 2

**CAPITAL  
CONSTRUCTION COSTS**

**ASSOCIATED CAPITAL  
COSTS**

**SITE ACQUISITION AND  
CLIENT'S OTHER COSTS**

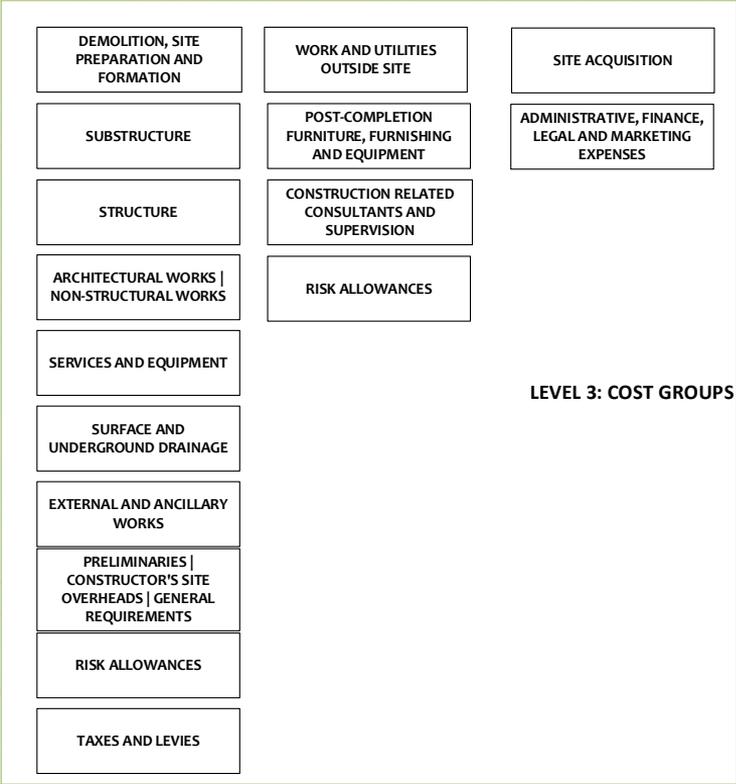


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# ICMS Level 3





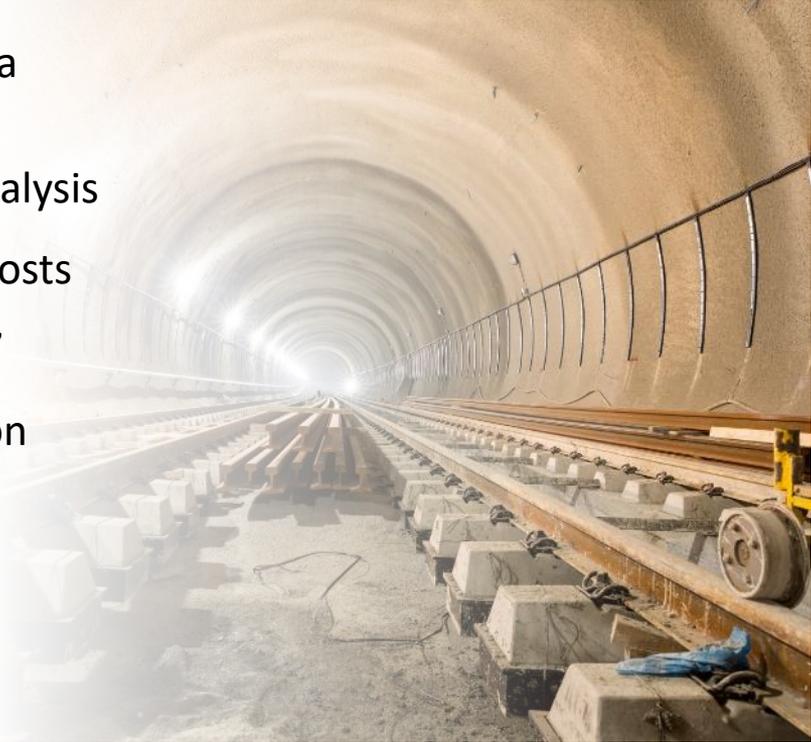
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# How will it be used?

- Cost reporting and data collection
- Investment and risk analysis
- Benchmarking global costs
- Informing 'should cost'
- Procurement evaluation
- Auditing
- Dispute resolution





# ICMS Partners will help to lead market adoption of ICMS

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# Governments and clients demand ICMS



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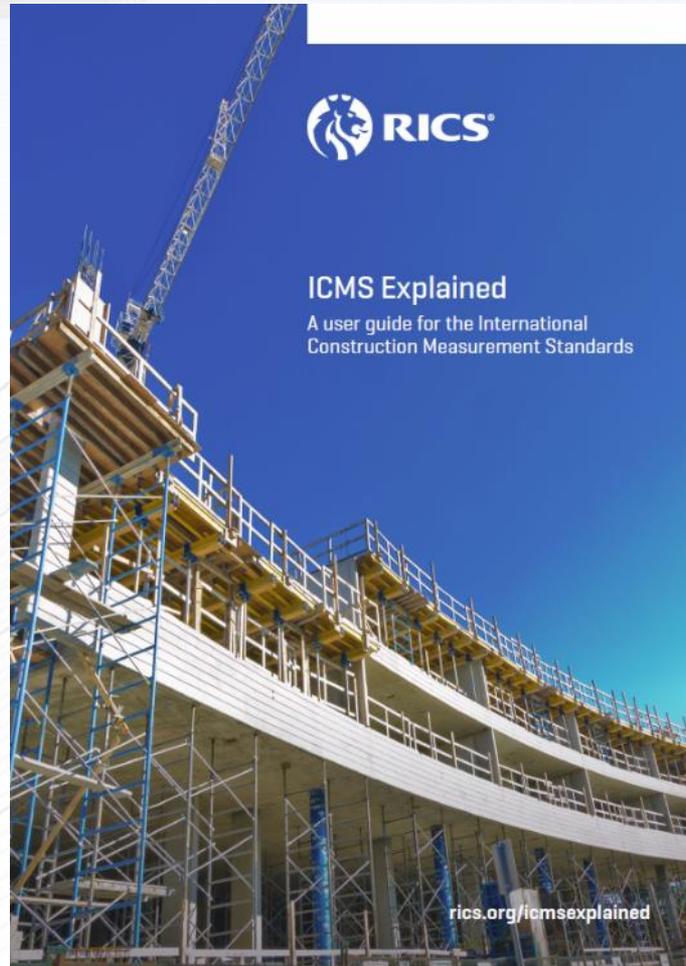


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# ICMS Explained

- User guide  
*To provide a brief guide of the background, structure, content and potential use for ICMS, together with various appendices, which provide further and more detailed guidance and worked examples.*





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# ICMS Data Standards

```
10 -->
11 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:rics="urn:rics:xsd:schema:commontypes:2.0" xmlns="urn:rics:xsd:schema:ipms:2.0" target
12 <xs:import namespace="urn:rics:xsd:schema:commontypes:2.0" schemaLocation="rics-common-types-2.0.xsd"/>
13 <xs:element name="IpmsMeasurement" type="IpmsMeasurement"/>
14 <xs:complexType name="IpmsMeasurement">
15   <xs:annotation>
16     <xs:documentation xml:lang="en">International Property Measurement Standards. A container that holds information on a building which
17   </xs:documentation>
18   </xs:annotation>
19   <xs:sequence>
20     <xs:element name="IpmsMeta" type="rics:IpmsMetaType"/>
21     <xs:element name="MeasuredProperty" type="rics:MeasuredPropertyType" maxOccurs="unbounded"/>
22     <xs:element name="Ipms2MeasuredAreaSummary" type="rics:IpmsMeasurementType" minOccurs="0">
23       <xs:annotation>
24         <xs:documentation xml:lang="en">The sum of the areas of each floor level of a building measured to the outer perimeter of ext
25       </xs:documentation>
26     </xs:annotation>
27   </xs:element>
28   <xs:element name="Ipms2MeasuredAreaSummary" type="rics:IpmsMeasurementType" minOccurs="0">
29     <xs:annotation>
30       <xs:documentation xml:lang="en">The sum of the areas of each floor level of a building measured to the internal dominant face
31     </xs:documentation>
32   </xs:annotation>
33 </xs:element>
34   <xs:element name="Ipms3MeasuredAreaSummary" type="rics:Ipms3MeasurementType" minOccurs="0" maxOccurs="unbounded">
35     <xs:annotation>
36       <xs:documentation xml:lang="en">The sum of the total floor area available on an exclusive basis to an occupier, but excluding
37     </xs:documentation>
38   </xs:annotation>
39 </xs:element>
```

- ▶ Use XML to produce an XSD schema that defines the architecture and format of the data as defined by the ICMS Standards
- ▶ RICS will provide support to help stakeholders understand and implement the standard at a commercial and technical level

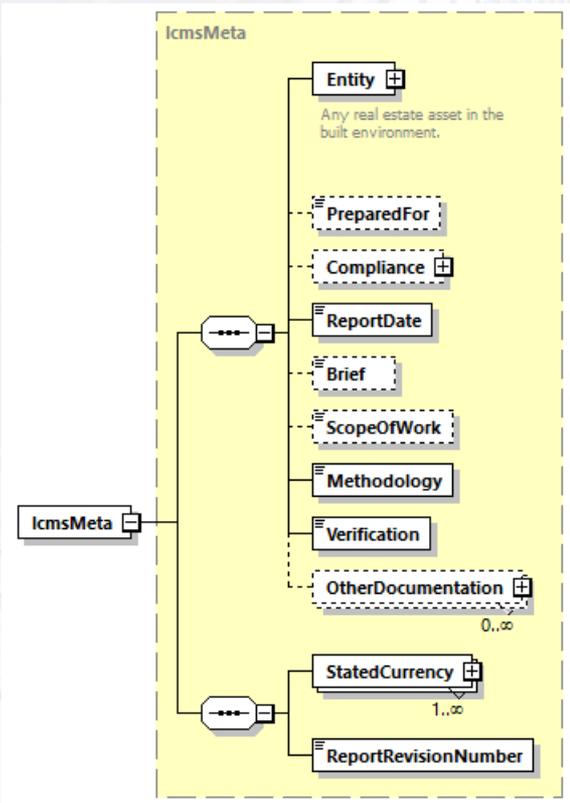




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# Application of Data Standards in ICMS



- ▶ Both have Metadata elements:
  - ▶ ‘Data about the data’
  - ▶ Provides trust by capturing who, how, why and when the data was collected and measured



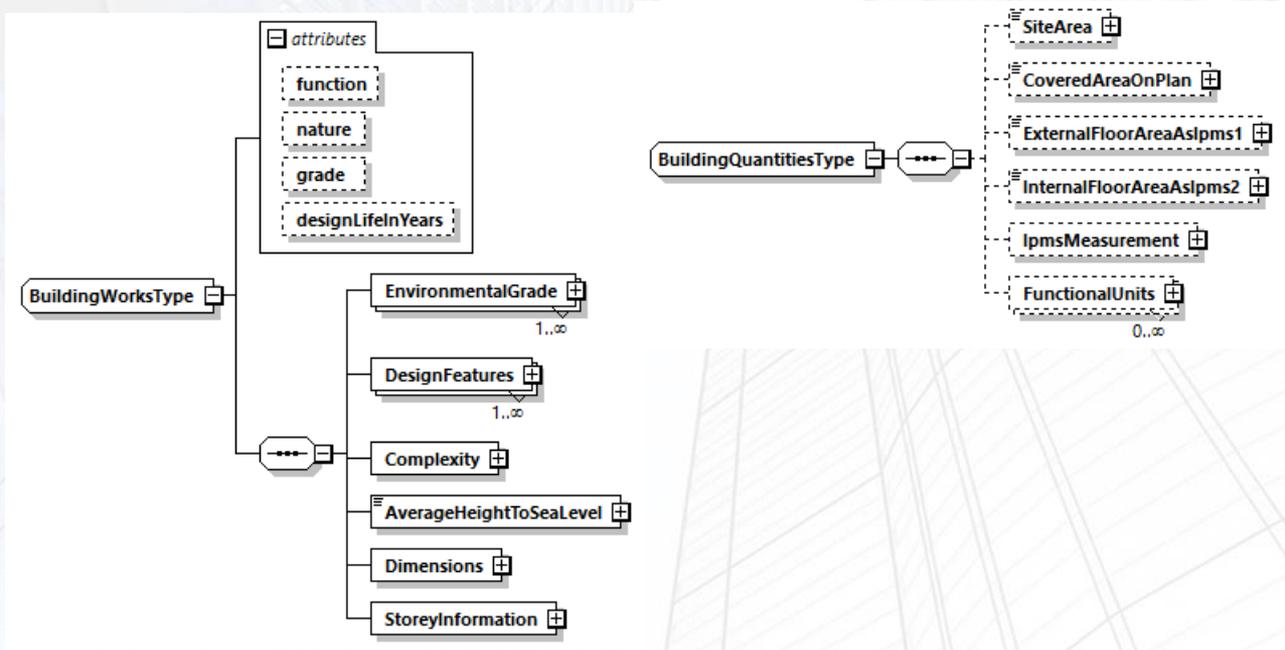
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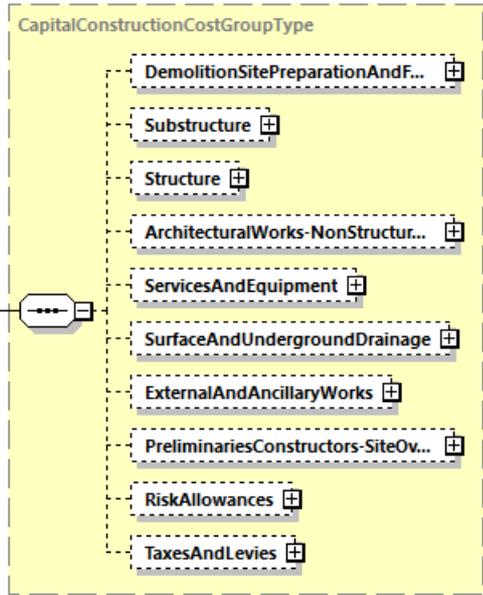
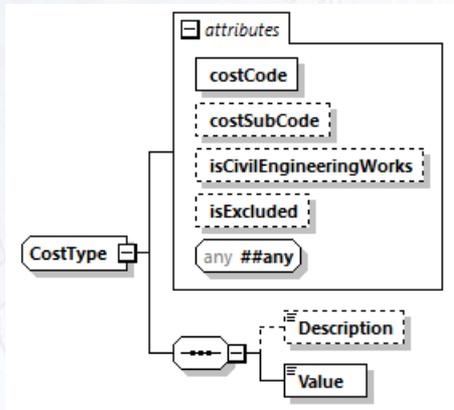
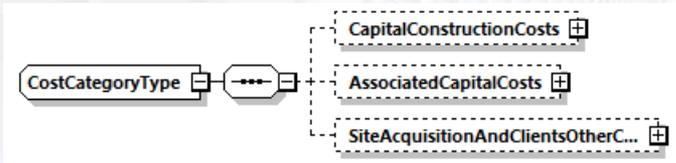
# Application of Data Standards in ICMS

- ▶ ICMS then provides support for all the various project types e.g. Building with elements for works, quantities...



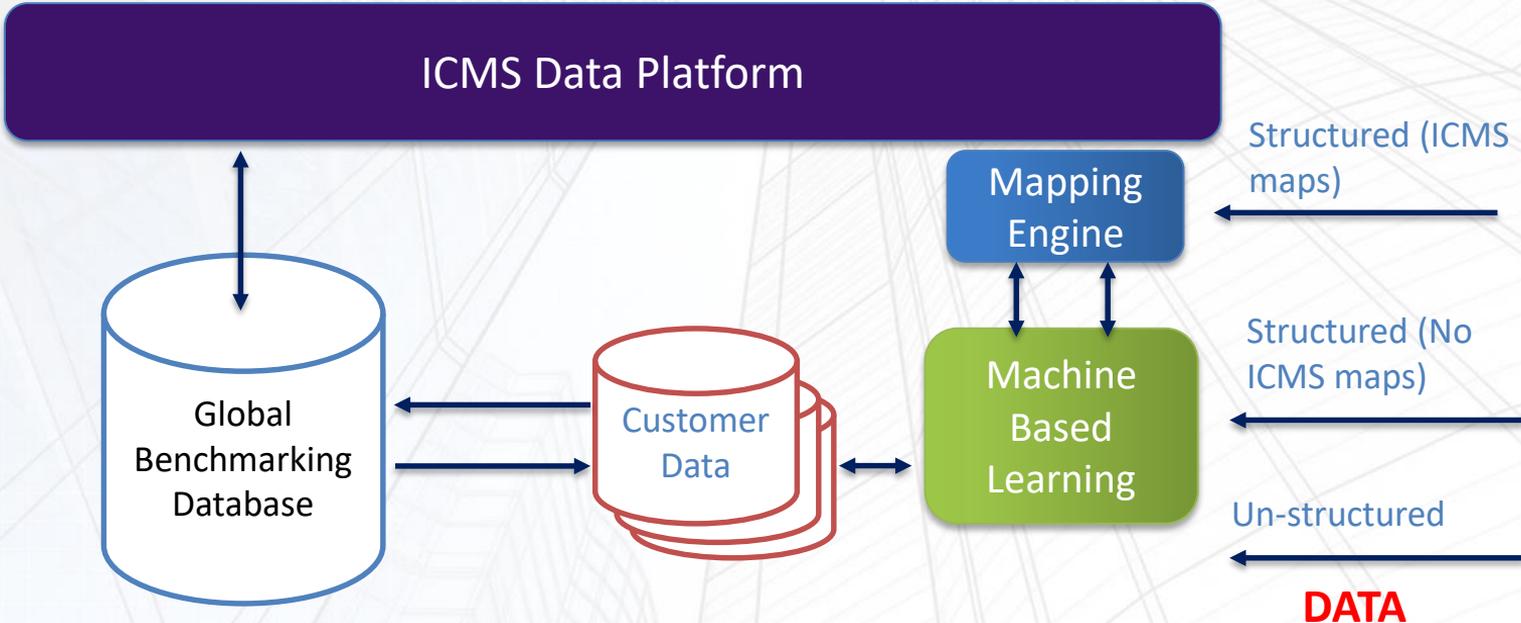


# Application of Data Standards in ICMS





# Cost Data





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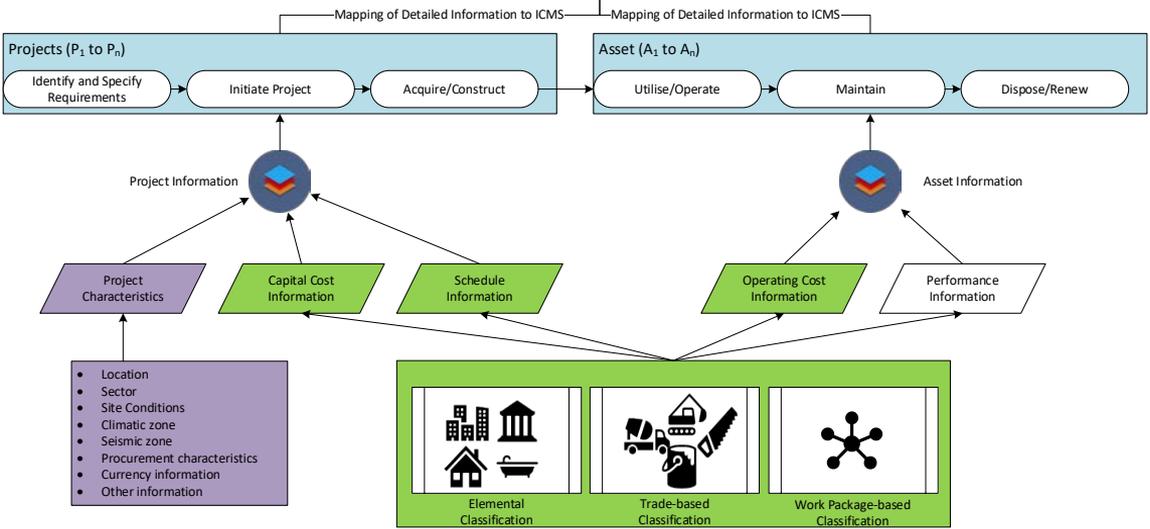
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INTERNATIONAL STANDARDS BASED IMPLEMENTATION



OWNER'S OR CONTRACTOR'S HISTORICAL AND ONGOING PROJECTS



# Project and Asset Benchmarking

# Cost Predictions



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# Next steps

- RICS Global Professional Statement in Cost Prediction
- NRM adaptation
- ICMS 2<sup>nd</sup> Edition

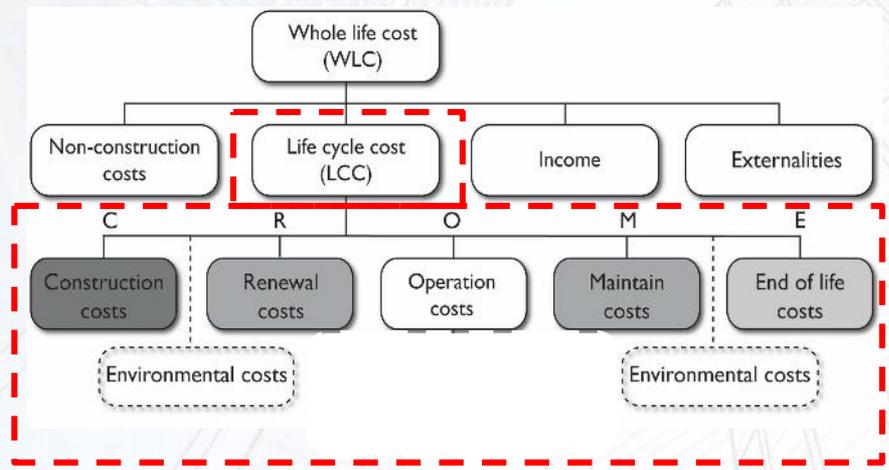




# ICMS 2 Basis of Classification

PRELIMINARY DRAFT

**CROME**



## ISO 15686-5:2017

Buildings and constructed assets -- Service life planning -- Part 5: Life-cycle costing



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 Training Courses

# Application of the International Construction Measurement Standards (ICMS)

ICMS establish a single, globally-agreed approach that sets out how to report, group and classify construction project costs in a structured and logical form. This course will delve deeper into the structure of ICMS, and explore how to apply the ICMS User Guide to your projects.

 Twitter: [#RICSAmericas](https://twitter.com/RICSAmericas)

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# International Construction Measurement Standards

[www.icms-coalition.org](http://www.icms-coalition.org)



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[asawhney@rics.org](mailto:asawhney@rics.org)