Digital Transformation of the Construction Industry for Sustainable Development
Цифровая трансформация строительной отрасли для устойчивого развития

18 November 2019, St. Petersburg, RUSSIA
18 ноября 2019, года в Санкт-Петербурге, Россия

GLOBAL COST PREDICTION
in a Post-ICMS world
ГЛОБАЛЬНЫЙ ПРОГНОЗ ЗАТРАТ
в пост-ICMS мире

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In-Touch Advisory, AUSTRALIA

... connecting you with solutions for your Built Environment

Stephen Ballesty, FRICS, FAIQS, IFMA Fellow, ICECA, CQS, CFM

- Stephen's Sydney based consulting firm In-Touch Advisory connects stakeholders with solutions for the Built Environment across the property–construction–facilities life cycle.
- Stephen is an Australian delegate for the ISO international FM standards initiative (ISO 41000 since 2012), ISO/TC-267's global liaison to ISO/TC-251 (ISO 55000 asset management). He is also the Oceania representative to the RICS's Global Cost Prediction working group.
- Stephen is a former member of the IFMA Board of Directors and Past Chairman of both the IFMA Foundation and FMA Australia.
- Stephen.Ballesty@in-touchadvisory.com
- https://committee.iso.org/home/tc267 for #ISO41000

Attendance and content today made possible with the assistance of our event organizer http://bim-fm.ru/ and:

GLOBAL COST PREDICTION in a Post-ICMS world

1. Global Challenges, Opportunities and Standardization
2. International Construction Measurement Standard (ICMS) update, 1st & 2nd editions
3. RICS Global Professional Statement in Cost Prediction, reporting, benchmarking and more sustainable FM outcomes

SESSION OBJECTIVE:
Understanding of the ICMS, and the thought leadership represented in the Global Professional Statement in Cost Prediction and its impact on Facilities Management (FM) in support of the UN's Sustainable Development Goals.

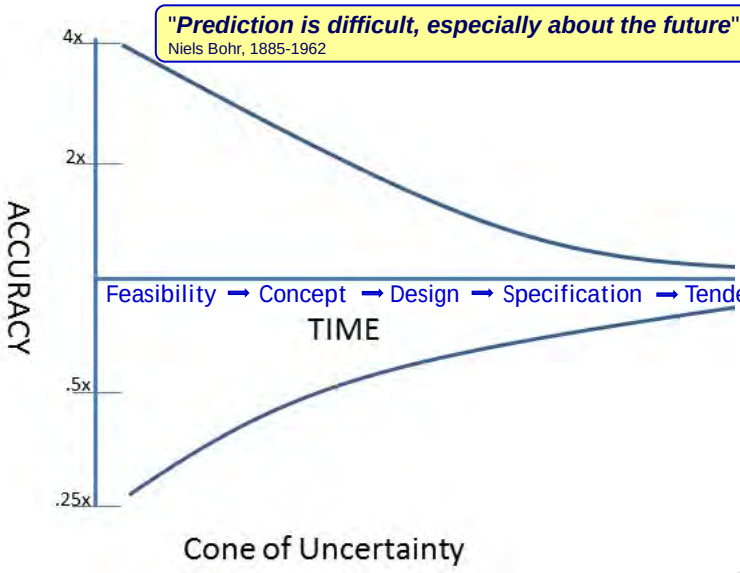
Global Challenges

- ❑ Unacceptable level of project failures, and poor productivity levels
- ❑ Project management information systems (PMIS) not yet ubiquitous
- ❑ Slow adoption of technological change
- ❑ Mixed approach to risk contingencies
- ❑ Low profit margins and returns
- ❑ Skills labour shortages
- ❑ Sustainability concerns
- ❑ Adversarial contracting
- ❑ etc. etc…

KPMG's 2015 Global Construction Project Owner's survey "*found that **only 25% of projects are delivered on time and within budget** – an extremely concerning statistic*"

Estimating & Cost Planning

"***Prediction is difficult, especially about the future***"
Niels Bohr, 1885-1962



- Expectations
- Definitions
- Structure
- Measurement
- Compliance
- Forecasts
- Market
- Contract
- Risks
- Life cycle
- Commissioning
- Operations / FM

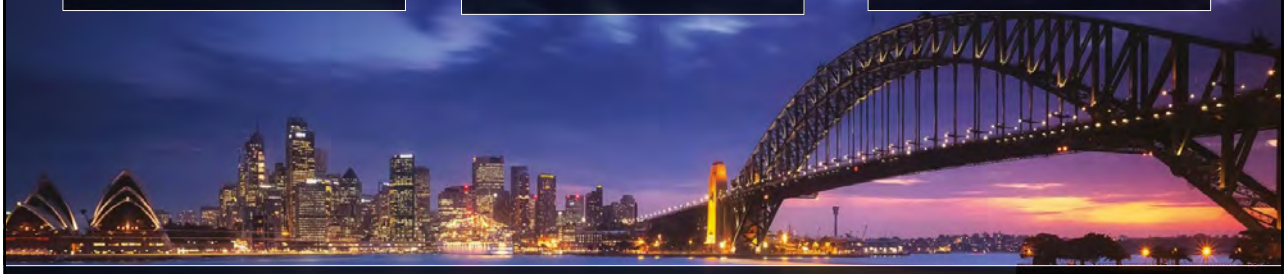
Future of Construction

Future of Construction's 2017 report: "*Digital technologies are disrupting the industry, providing new opportunities to address the challenges of poor profitability/productivity, project performance, skilled labour shortages, and sustainability concerns.*"

Standards matter

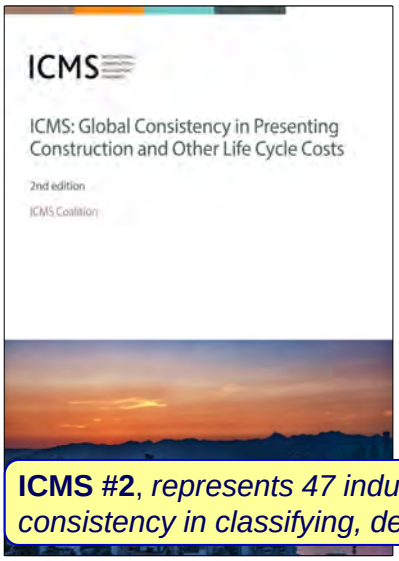
Standards are fundamental to operating in a truly sustainable global environment, and offer:

- a common language
- consistent reporting
- greater transparency
- increased confidence through reduced risk
- ability to performance benchmark
- measure, cost, analyse and forecast



Pursuit of global market transparency, comparability and performance benchmarking.

International Construction Measurement Standard (ICMS)



- ICMS #1 released July 2017
- ICMS #2 new for September 2019
- ICMS #2 covers buildings and civil engineering assets
- Standards for measuring, reporting and benchmarking of construction project cost and now life cycle costs
- Major project delivery is increasingly multi-national and multi-disciplinary

FREE download: https://icms-coalition.org/

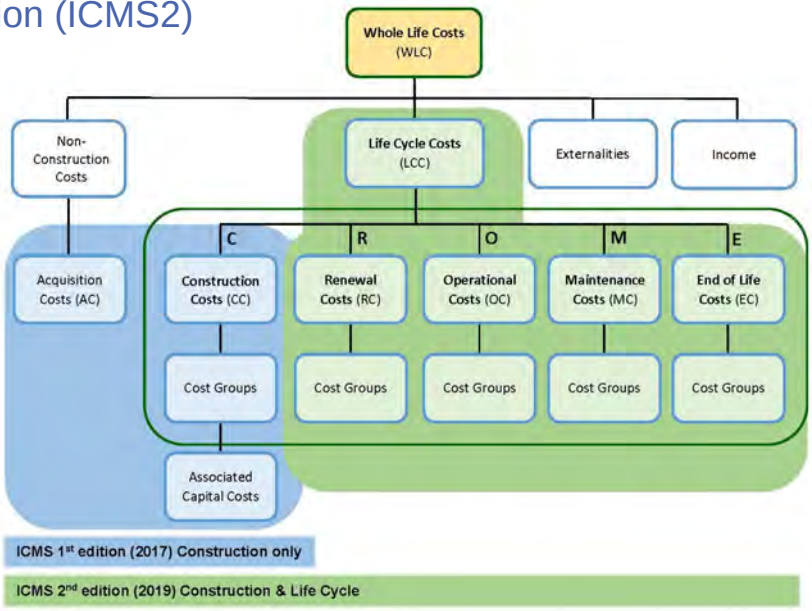
ICMS #2, *represents 47 industry body signatories aiming to provide global consistency in classifying, defining, measuring, analyzing and reporting project costs*

ICMS 2nd edition (ICMS2)

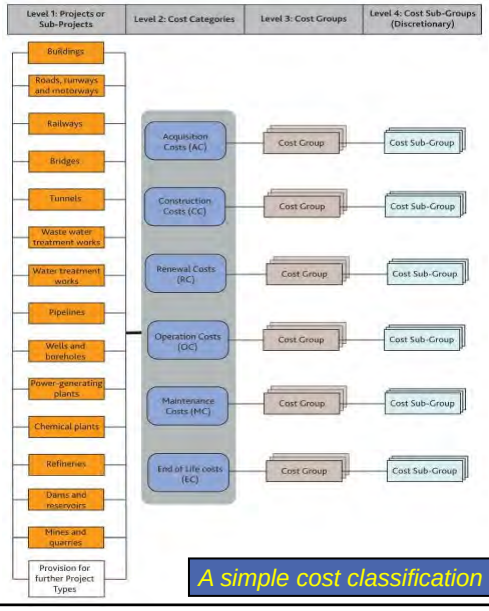
ICMS2 (2019) defines **CROME** as the new framework:

- ❑ **C**onstruction
- ❑ **R**enewal
- ❑ **O**perational
- ❑ **M**aintenance
- ❑ **E**nd of Life

"Life Cycle Costing, where the QS and the FM'er meet"
Ballesty, World Workplace Asia 2010



International Construction Measurement Standard (ICMS)



- ❑ High-level cost classification
- ❑ Buildings and civil engineering
- ❑ Definitions, inclusions and exclusions
- ❑ Four level taxonomy
  1. Projects or Sub-Projects
  2. *Cost Categories*
  3. Cost Groups
  4. Cost Sub-Groups
- ❑ Key cost drivers

Level 2 Cost Categories

- **Acquisition Costs** (AC)
- **Construction Costs** (CC)
- **Renewal Costs** (RC)
- **Operational Costs** (OC)
- **Maintenance Costs** (MC)
- **End of Life Costs** (EC)

A simple cost classification hierarchy to overlay local methods of measurement

ICMS 2nd edition (incorporating life cycle costs)

The Iceberg Principle

Calculating Life Cycle Costs

NOTE: Diagrammatic only, proportions vary by sector, project and source.

- "*The first edition of ICMS focused on creating a standard for capital cost reporting. The second edition builds upon this by creating a cost classification for renewal, operation and maintenance – all components which have a direct impact on* **facility management**.
- *The second edition of ICMS will better connect* **facility management** *and early investment and construction cost decisions*".
- ICMS #2 was published late September 2019.

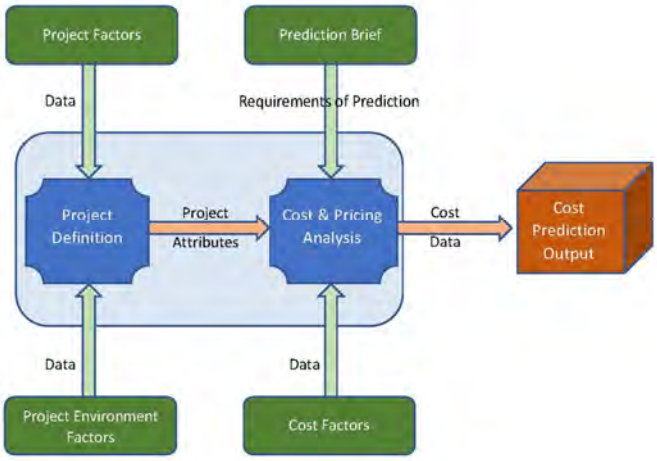
RICS Global Professional Statement in Cost Prediction (GPSCP)

- 22 experts from 12 countries over two years
- 1st edition Report release due in early 2020

GPSCP consultation draft: https://consultations.rics.org/consult.ti/costprediction/consultationHome

RICS Global Professional Statement in Cost Prediction (GPSCP)

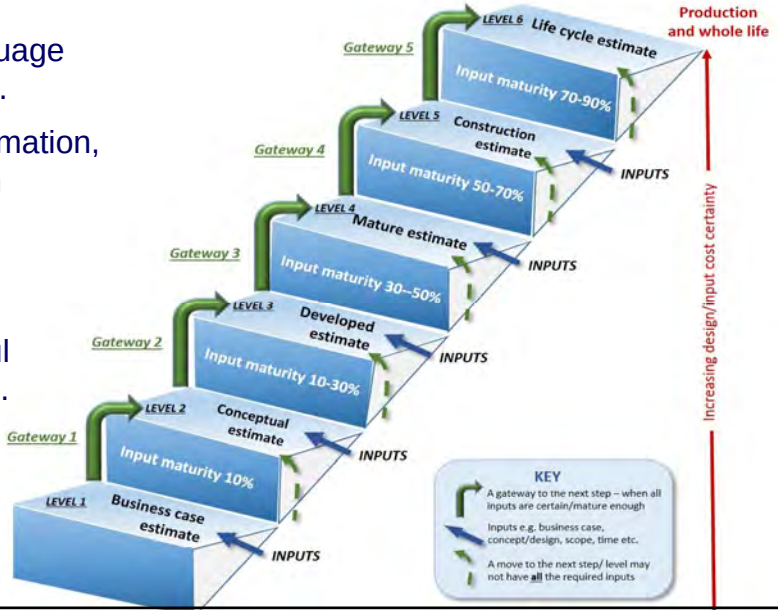
- Examining cost planning and control techniques



- ICMS #2 alignment

RICS Global Professional Statement in Cost Prediction (GPSCP)

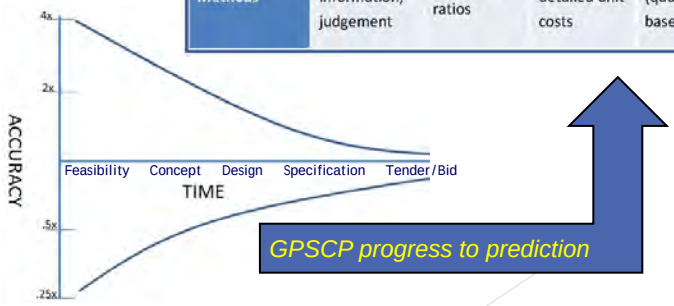
- A common process language for global cost prediction.
- Inputs can be data, information, productivity, construction materials, construction methodology or time.
- FM inputs are required throughout for successful life cycle implementation.
- Design is an input, not the input.



RICS Global Professional Statement in Cost Prediction (GPSCP)

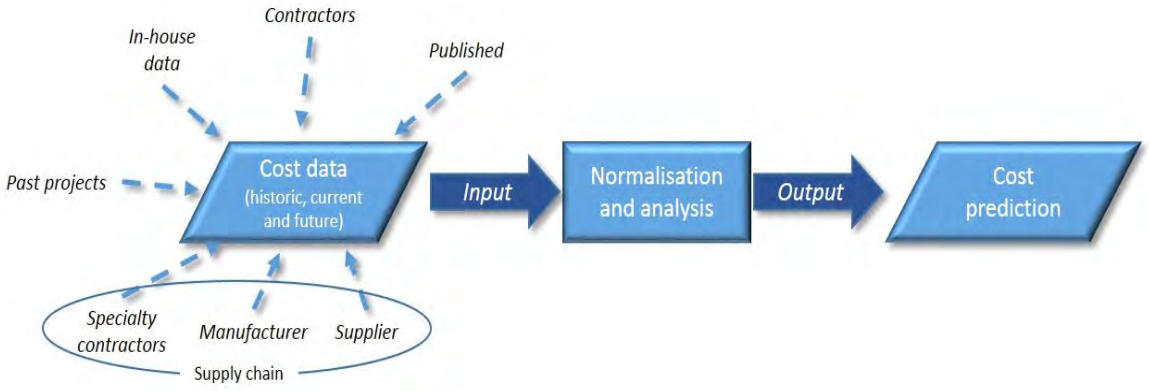
- Cone of uncertainty v's defined costing levels
- Direct correlation between design info / data completeness and costing accuracy by level

Criteria	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Cost prediction levels	Business case estimate	Conceptual estimate	Developed estimate	Mature estimate	Construction estimate	Life cycle estimate
Information completeness	10%	10–30%	30–50%	50–70%	70–90%	90-100%
Cost prediction accuracy	-30% to +50%	-20% to +30%	-15% to +20%	-10% to +15%	-5% to +10%	>10%
Methods	Historical information, judgement	Parametric ratios	Semi-detailed unit costs	Detail (quantity based)	Detail (quantity based and full specs)	Economic evaluation



RICS Global Professional Statement in Cost Prediction (GPSCP)

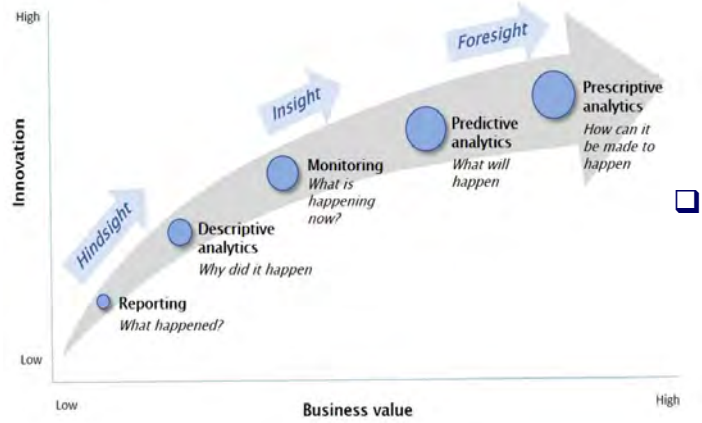
- Recognition of data sources, attributes and values



- ISO 31000:2018 defines risk as the "*effect of uncertainty on objectives*"
- Focus on out-turn cost / final account targets

RICS Global Professional Statement in Cost Prediction (GPSCP)

- ❑ Data structure, metrics and acquisition



demonstrated value of data processing

- ❑ **Data curation steps:**
  1. Selection
  2. Logic
  3. Integrity
  4. Context
- ❑ **Data sources include:**
  - Clients
  - Consultants
  - Professional organisations
  - National and supra-national agencies

RICS Global Professional Statement in Cost Prediction (GPSCP)

- ❑ Data structure, metrics and acquisition

Barrier	Reason
Human factors	• Lack of trust (e.g. previous interactions and history of partnerships) • Fear of misinterpretation/misuse of data • Confidentiality and privacy concerns • Limited resources, availability of skilled staff
Usability	• Records not kept electronically • Data in an incompatible format • Only aggregated or incomplete data is available • Frequency of data release, timeliness
Availability	• Uncertainty about where data exist • Uncertainty about how to access data • Onerous approval process for accessing data • Policies, including local and national laws that limit access

some of the barriers to data acquisition

- ❑ **Data curation steps:**
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  2. Logic
  3. Integrity
  4. Context
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Global Cost Prediction

- **ICMS** 2nd edition (2019)
- **ISO 41000** series since 2017, and now ICMS recognition of FM.
- RICS Global Professional Statement in Cost Prediction (**GPSCP, 2020**)
- **Cost Classification** for Construction, and now Life Cycle, leading to Costs being consistently and transparently benchmarked.

GPSCP OBJECTIVE: *"improved data and informed decision making on the design, construction and operation of facilities worldwide".*

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Thank you & Questions

Спасибо & Вопросы

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... connecting you with solutions for your Built Environment