



WORLD WORKPLACE
BUILDING THE FUTURE
BUILT ENVIRONMENT | SUSTAINABILITY | HUMAN EXPERIENCE

Virtual Experience Dec. 9 - 10, 2020

GLOBAL COST PREDICTION 2020

in a Post-ICMS world

Session 1.01, 12:30pm Dec. 9







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, 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 since 2015).
-  In addition he was an Australasian representative to the RICS's Global Cost Prediction working group (2017-20) .
-  Stephen is a former member of the IFMA Board of Directors and Past Chairman of both the IFMA Foundation and FMA Australia.

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GLOBAL COST PREDICTION 2020



1. Global Challenges, Opportunities & Standardisation
2. International Construction Measurement Standard (ICMS), 1st & 2nd editions (2017 & 2019)
3. RICS' Professional Statement in Cost Prediction, Global (2020, tbc)

Due to the virtual nature of this event *post script notes* or '*post-its*' have been added in this format. These are not intended as mere animations, but rather embedded '*cookies*' or the reason for a slide.

This document has been prepared for the IFMA's World Workplace 2020 (USA). It should be noted that this document represents a summary of the issues addressed and does not constitute advice. The author makes no representation as to its accuracy or completeness and the information should not be relied upon as such. Although care has been exercised in its preparation, the author accepts no legal responsibility for any loss or damage suffered as a result of any inadvertent inaccuracy. This document reflects the author's personal views only. This document should not be relied upon without seeking independent, professional advice and obtaining the full version of the publications and sources referred to herein.






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“
Cost prediction encompasses *estimating, cost planning, benchmarking* across the project life cycle for *clients, consultants and contractors* on both buildings and infrastructure ”

GLOBAL COST PREDICTION

in a Post-ICMS world



No, not *Post-apocalyptic*, or *Post-COVID* but imagine a world without FM or FM without standards


SYDNEY

looks forward to welcoming you
in a Post-COVID world




Sydney is doing fine

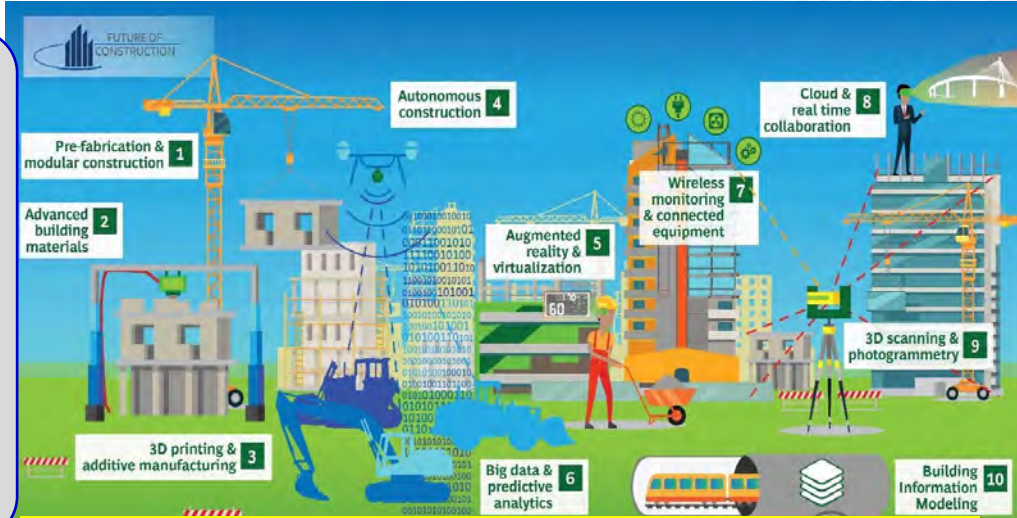
<https://committee.iso.org/home/tc267> unrelated to this presentation, last July Standards Australia accepted the first four in the ISO 41000 series of international FM standards for identical adoption as national standards.





Managing the Built Environment




Future of Construction report (2017, UK):
“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.”





This is offered as just one example of the **'complexity challenge'**. There are many others. My point here is this level of **complexity comes at a COST ... and expects much of FM.** No criticism, but these sort of depictions often leave out **COST** and / or **FM**.





Managing the Cost





Reflective of an industry tendency to focus on one off **'Capital Costs'** and **'premature Budgets'**, with a reliance on **'area based benchmarks rates'** or the simplicity of **"Quantity x Rate"**.

Quantity Surveyor (QS): is a construction industry professional with expert knowledge on construction costs and contracts.
 RICS qualified quantity surveyors are designated as **“Chartered Surveyors”**.



Our 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. ... and now? **COVID-19**

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"**

Over-Budget Construction Projects In Comparison

Selected over-budget construction projects worldwide (in U.S. dollars)¹


Project	Planned	Total	\$ Over Budget
The Channel Tunnel	~\$10bn	~\$35bn	\$21.1bn
Three Gorges Dam	~\$10bn	~\$25bn	\$16.1bn
Boston's Big Dig	~\$10bn	~\$23bn	\$13.4bn
Berlin Brandenburg Airport	~\$5bn	~\$18bn	\$13.2bn
Great Belt Fixed Link	~\$5bn	~\$17bn	\$11.8bn
Denver International Airport	~\$5bn	~\$16bn	\$11.1bn
World Trade Center Transportation Hub	~\$5bn	~\$15bn	\$10.0bn
Montreal Olympic Stadium	~\$5bn	~\$15bn	\$10.0bn
Budapest Metro Line 4	~\$5bn	~\$11bn	\$1.6bn
Millennium Dome	~\$5bn	~\$5.95bn	\$895m
Wembley Stadium	~\$5bn	~\$5.77bn	\$776m
Elphilharmonie	~\$5bn	~\$5.67bn	\$678m

to US dollars and adjusted for inflation. ¹ Statista.com. Sources: Phillips, Don Spiegel, NY Times


Following the money?

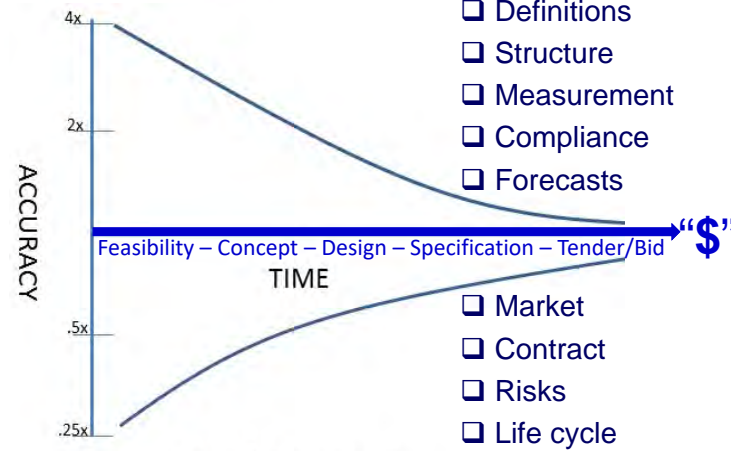






Estimating & Cost Planning realities





- Expectations
- Definitions
- Structure
- Measurement
- Compliance
- Forecasts

for most a **'Traditional approach'**

"exclusions" & "contingencies"

but for the **'Unknowns'**



also known as **'final account', 'actual cost' or 'cost outcome'**


"Out-turn cost"

new term for destination **2020+ ?!**


Cone of Uncertainty

- Market
- Contract
- Risks
- Life cycle
- Commissioning
- Operations / FM

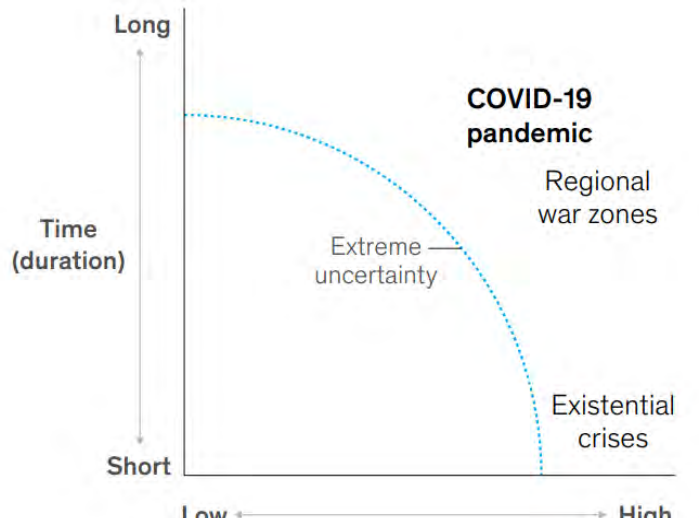






Our Global Challenges




“In normal times organizations face numerous uncertainties of varying consequence. Managers deal with challenges by relying on **established structures and processes**. These are designed **to reduce uncertainty** and support calculated bets to manage the residual risks”.






Source: McKinsey Analysis, Oct. 2020

Nothing new here, but a useful context.

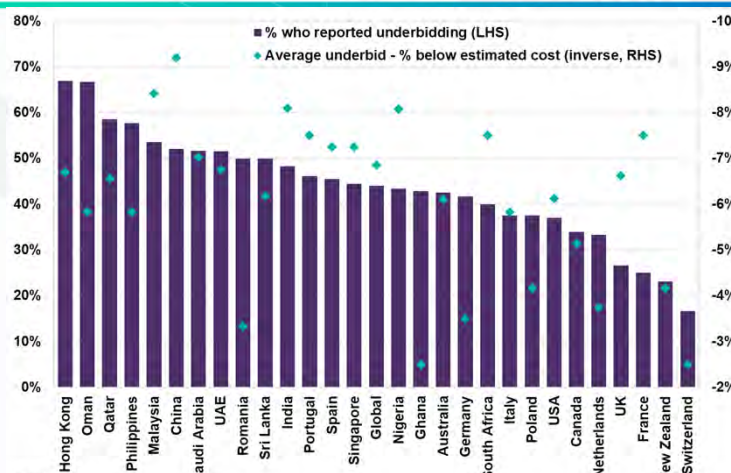



Our Global Challenges



RICS Global Construction Monitor:
 Quarterly construction sentiment survey, Q3, 2020. Survey covering 26 countries, over 1,500 unique responses.
COVID-19 impacts:

- Increased underbidding
- More projects on-hold or cancelled
- Decline in on-site productivity.





Source: RICS Research, Oct. 2020

Prevalence of underbidding and average 'underbid' since onset of COVID-19.

But this is new?, and interesting!

STANDARDS MATTER, in the pursuit ...

a common language

consistent reporting

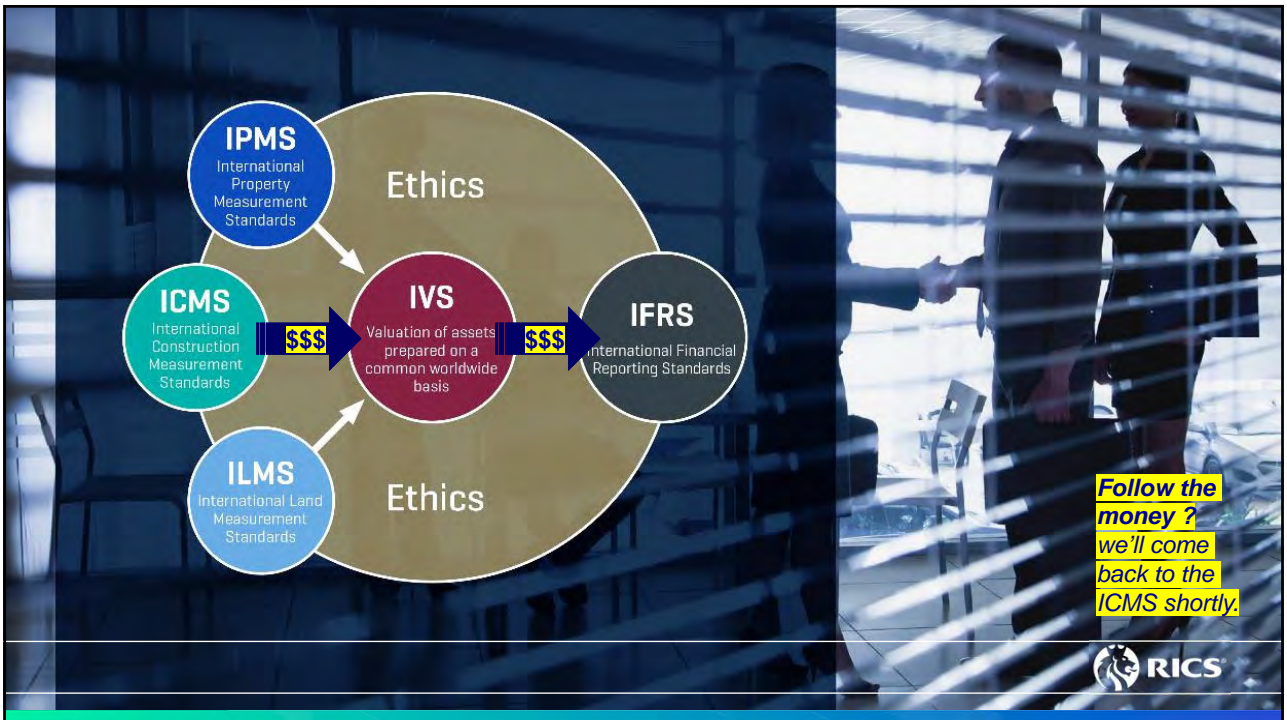
greater transparency

increased confidence through reduced risk

ability to performance benchmark

data capture, costing, analysis and forecasts

... of global market transparency, comparability and performance benchmarking.





International Construction Measurement Standard




- ❑ **ICMS Coalition** formed in 2015, now with 48 professional bodies worldwide.
- ❑ **ICMS** scope covers buildings and civil engineering assets.
- ❑ **ICMS#1** released July 2017
- ❑ **ICMS#2** released September 2019
- ❑ Focus on constructed assets so that **cross-boundary costs** can be consistently benchmarked and cost differences identified.
- ❑ Standards for measuring, reporting and **benchmarking** of construction project cost and life cycle costs






Free ICMS download: <https://icms-coalition.org/>




Virtual Experience ICMS 2nd ed (inc. life cycle costs)



The Iceberg Principle

Calculating Life Cycle Costs

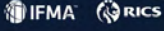


- ❑ *“The first edition of ICMS focused on creating a standard for capital cost reporting. The second edition builds upon this by creating a cost classification for renewal, operation and maintenance – all components which have a direct impact on facility management.*

*The second edition of ICMS will better connect **facility management** and early investment and construction cost decisions”.*


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

Source: ICMS Coalition press release, March 2019



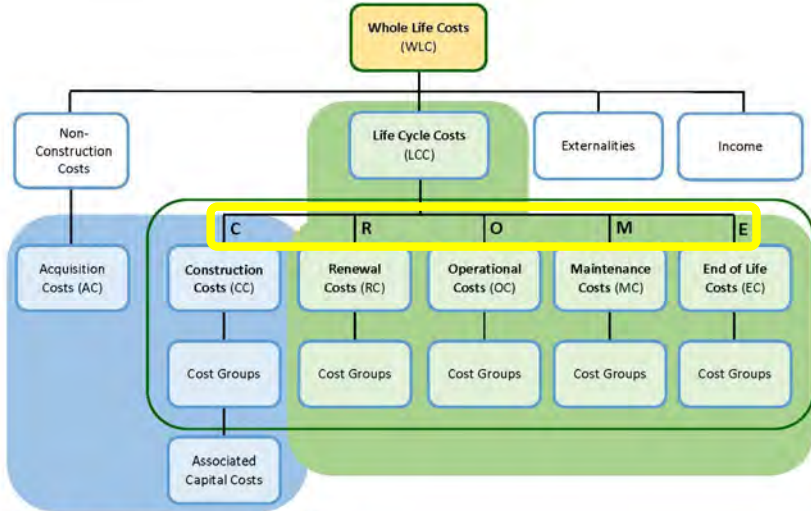
Free ICMS download: <https://icms-coalition.org/>

ICMS 1st ed. versus 2nd ed. footprint



ICMS#2 (2019) defines **CROME** as the new framework:

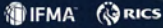
- Construction
- Renewal
- Operational
- Maintenance
- End of Life




ICMS 1st edition (2017) Construction only

ICMS 2nd edition (2019) Construction & Life Cycle

Source: ICMS#2, 2019




ICMS 2nd ed. C.R.O.M.E. application



ICMS#2 (2019) defines **CROME** as the new framework:

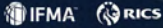
- Construction
- Renewal
- Operational
- Maintenance
- End of Life





Source: Construction Journal: November-December 2019, Dr. Anil Sawhney PhD, FRICS, FHEA

Integrated thinking across some traditional silos.


Source: ICMS#2, 2019







 **RICS' Cost Prediction Professional Statement, Global** 

*“Different markets and construction sectors undertake **cost prediction** in different ways. This professional statement elicits the **key principles** from these various approaches to **signpost best practice** from around the world”.*



  Source: RICS' GPSCP, draft 2020

RICS' Cost Prediction Professional Statement, Global

Alan Muse, RICS' Global Director of the Built Environment
amuse@rics.org

- 2 North American reps
- 2 European reps
- 2 Asian reps
- 2 Australian reps

- 22 participants from 12 countries
- East & West calls over two (2) years
- Three (3) workshops in London
- Additional research and consultation
- ICMS based, then ICMS2 alignment
- Report release due **November 2020***

* As advised by the RICS on 5 October 2020


RICS' Cost Prediction Professional Statement, Global

1st edition Report for a 2020 release


RICS Global Professional Statement in Cost Prediction

- Context**
Defining external/internal parameters & the framework for developing cost predictions
- Process**
Inputs and outputs, process maturity, risk and de-biasing
- Data**
Data sources, structure, curation and AI and re-basing
- Output**
Development of cost prediction report and reporting templates

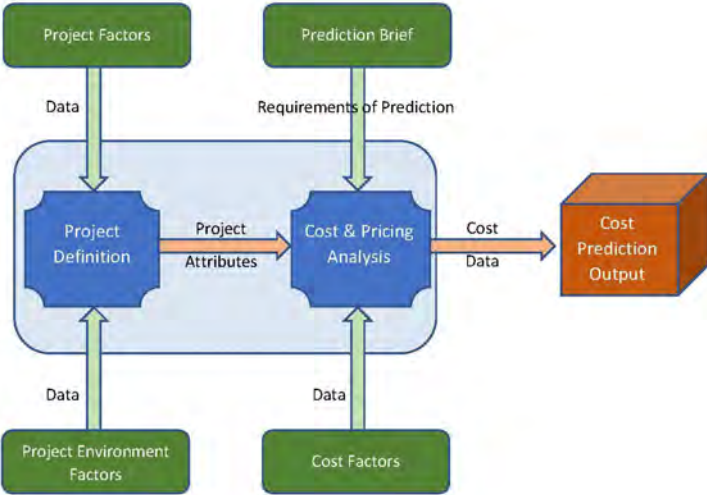

Source: RICS' GPSCP, draft 2020




RICS' Cost Prediction Professional Statement, Global




❑ Examining cost planning and control techniques




❑ ICMS #2 alignment

Source: RICS' GPSCP, draft 2020

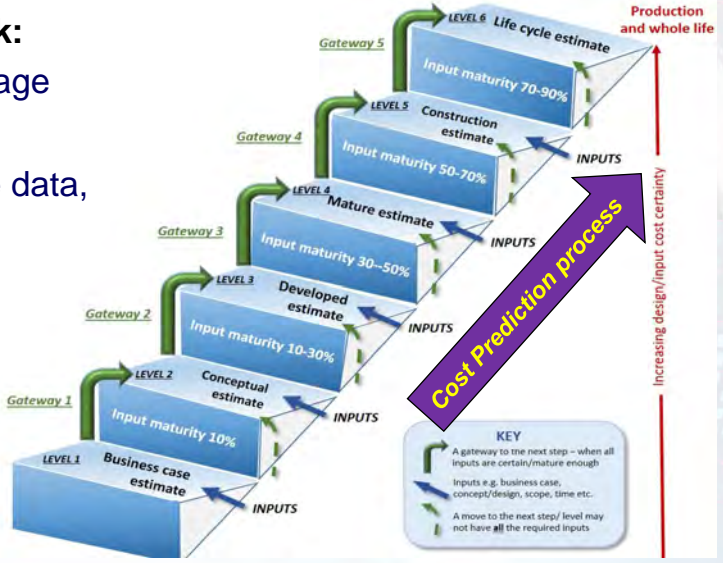




RICS' Cost Prediction Professional Statement, Global




Cost Reporting Framework:

- ❑ A common process language for global cost prediction.
- ❑ Progressive inputs can be data, information, productivity, construction materials, methodology or timing.
- ❑ WOL considerations throughout.
- ❑ Design is an input, not the input.




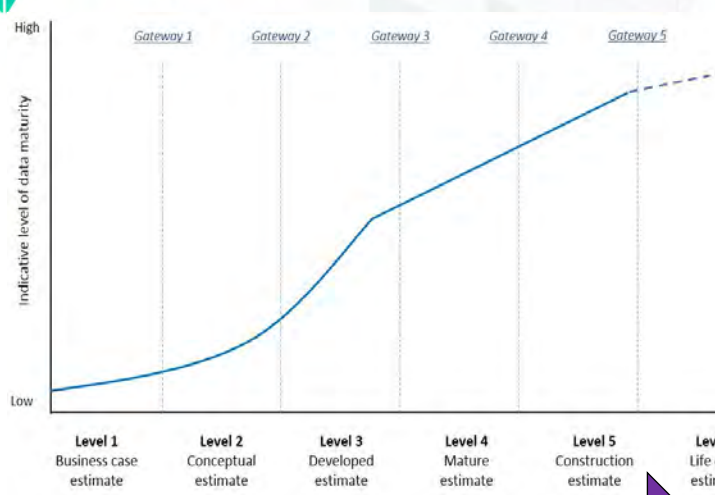



Source: RICS' GPSCP, draft 2020



RICS' Cost Prediction Professional Statement, Global






Cost Prediction process →


Mandatory Requirements:

Note: This is only a summary.


- reliable cost prediction appropriate to the project stage
- the use of the ICMS
- sources and dependability of cost data
- identify key assumptions
- report changes and reasons for
- provide an estimate of accuracy or level of uncertainty in cost prediction and how it can be improved



Source: RICS' GPSCP, draft 2020



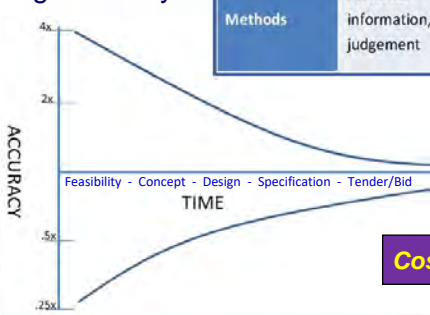
RICS' Cost Prediction Professional Statement, Global



- Cone of uncertainty y'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

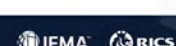
Remember this from slide 10?



... more of a giant leap than a small step?

↑

Cost Prediction process



Source: RICS' GPSCP, draft 2020



RICS' Cost Prediction Professional Statement, Global




- Minimising risk, uncertainty and bias ... to improve outputs.
- Intuition v's Rational reasoning:
 - **Optimism bias** - a tendency to underestimate the cost and overestimate the benefits or favourable outcomes.
 - **Anchoring bias** - a tendency to rely too heavily, or "anchor", on one piece of information when making decisions.
 - **Confirmatory bias** - a tendency to focus on, remember or search for information in a way that confirms preconceptions.
 - **Unconscious bias** - a bias that we are unaware of, and which happens outside of our control.







Source: RICS' GPSCP, draft 2020

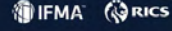


RICS' Cost Prediction Professional Statement, Global



- ICMS provides standardised cost classification
- Recognition of cost data sources, attributes and integrity





Linking this with **CROME** (slide 18) and **integrated thinking** (slide 19) across some traditional silos becomes a powerful tool that benefits FM.

Source: RICS' GPSCP, draft 2020



Virtual Experience **GLOBAL COST PREDICTION 2020**



"Prediction is difficult, especially about the future"

Niels Bohr, 1885-1962
The Danish physicist who made foundational contributions to understanding atomic structure and quantum theory, for which he received the Nobel Prize in Physics in 1922.

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... connecting you with solutions for your Built Environment





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