

2023 RLB SEMINAR

SPEAKERS

SILAS LOH
MANAGING
DIRECTOR,
RLB



COLIN KIN
MANAGING
DIRECTOR,
RLB



LAI SUN MEI
DIRECTOR,
RLB



STEPHEN BALLESTY
FOUNDER,
IN-TOUCH
ADVISORY



23 MAY

REGISTRATION STARTS AT 2.30 PM
SEMINAR FROM 3 PM ONWARDS

PROGRAMME

- Where are we heading: Construction market sensing - by Silas Loh
- Collaborative Contracting mindset requirements - by Colin Kin and Lai Sun Mei
- Strength in numbers: The race to reduce carbon emissions - by Stephen Ballesty
- Open forum - Panel of speakers

VENUE

**RAMADA BY WYNDHAM SINGAPORE
AT ZHONGSHAN PARK**

BALESTIER BALLROOM LEVEL 2



16 Ah Hood Road
Singapore 329982



Refer to registration form for details

REGISTER YOUR INTEREST HERE

Thank you to our Singapore supporter:

Decarbonisation of the Built Environment

Stephen Ballesty, FRICS, FAIQS, IFMA Fellow, ICECA, CQS, CFM
In-Touch Advisory

in-touchadvisory.com *connecting you with solutions for your Built Environment*

Singapore: 23 May 2023

Stephen Ballesty

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




Stephen.Ballesty@in-touchadvisory.com

- ❑ Stephen's consulting firm **In-Touch Advisory** connects stakeholders with solutions for the Built Environment across the property–construction–facilities life cycle.
- ❑ He is the AIQS representative to Standards Australia's MB-022 Committee for, and in turn an Australian delegate ISO/TC-267 for FM standards (ISO 41000 facility management since 2012), ISO/TC-267's global liaison to ISO/TC-251 (ISO 55000 asset management since 2014).
- ❑ Stephen is the currently the Regional Director – Australasia for IFMA's FM Consultant Council. He is also a former member of the IFMA Global Board of Directors and Past Chairman of both the IFMA Foundation and FMA Australia.

Acknowledgements:
This presentation is based on the paper prepared for the CIB W070 conference in Trondheim, Norway on 11 May 2023. This paper was jointly prepared with **Anil Sawhney** PhD, PMP, FRICS, FHEA, Construction Sector Lead, RICS; and Chair, ICMS Standard Setting Committee, New York. Also some content and images are courtesy of the ISO, Standards Australia, AIQS, and RICS; plus ICMS Coalition, IEA, MECLA, WorldGBC and **WRC**.






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Standards Matter, in the pursuit ...

- a common language
- consistent reporting
- greater transparency
- data capture, costing, analysis and forecasts
- ability to performance benchmarking
- increased confidence through reduced risk

... of global transparency, comparability and collaboration on solutions.

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Sustainability Needs Statement

World Resources Institute

- ☐ “The cumulative scientific evidence is unequivocal: **Climate change** is a threat to human well-being and planetary health. Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and **rapidly closing window of opportunity** to secure a liveable and sustainable future for all”.
UN Certainty Assessment: *very high confidence*
Source: [IPCC - WGII Report: Impacts, Adaptation and Vulnerability, 28 Feb 2022](#)
- ☐ Buildings and construction’s 2020 share global energy (**36%**) and carbon emissions (**37%**).
Source: [2021 UNEP Global Status Report for Buildings & Construction](#)

Source: World Resources Institute based on [IPCC - WGI Report, 5 Aug 2021](#)

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Built Environment as a Carbon contributor

Buildings and construction's share of global final energy and energy-related CO₂ emissions, 2020

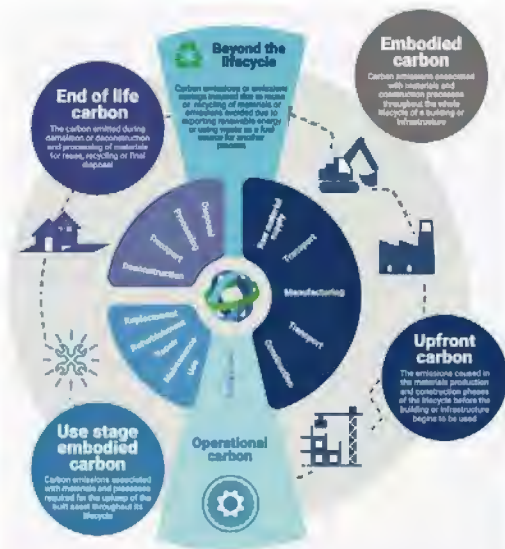
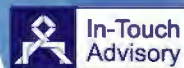


Note: "Buildings construction industry" is the portion (estimated) of overall industry devoted to manufacturing building construction materials such as steel, cement and glass. Indirect emissions are emissions from power generation for electricity and commercial heat.

Source: IEA 2021a. All rights reserved. Adapted from "Tracking Clean Energy Progress"

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Built Environment as a Carbon contributor



"Carbon emissions released before the building or infrastructure begins to be used, sometimes called **upfront carbon**, will be responsible for half of the entire carbon footprint of new construction between now and 2050, threatening to consume a large part of our remaining carbon budget.


As **operational carbon** is reduced, **embodied carbon** will continue to grow in importance as a proportion of total emissions."

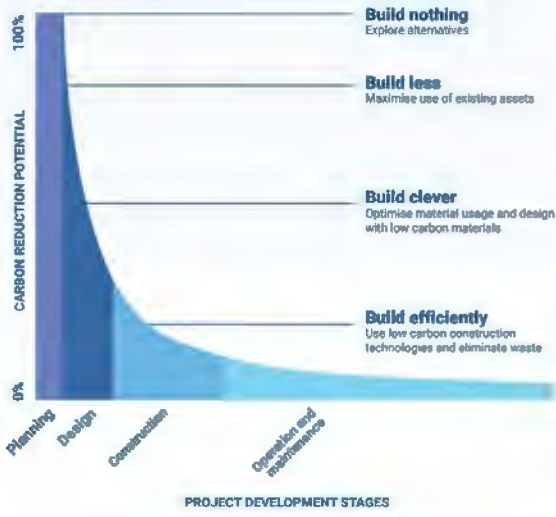
WorldGBC, 2019

Source: [WorldGBC Bringing Embodied Carbon Upfront \(2019\).pdf](#)

Figure 3: Project lifecycle showing both the scope of the challenge and need for whole life sustainability.
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Built Environment as a Carbon contributor





Build nothing
Explore alternatives

Build less
Maximize use of existing assets

Build clever
Optimize material usage and design with low carbon materials

Build efficiently
Use low carbon construction technologies and eliminate waste

PROJECT DEVELOPMENT STAGES

Figure 4: Opportunities to reduce embodied carbon from stage of design process.
Source: N&M Treasury: Infrastructure Carbon Review, 2013

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Carbon reduction potential principles:

1. Prevent
2. Reduce and optimise
3. Plan for the future
4. Offset

WorldGBC, 2019

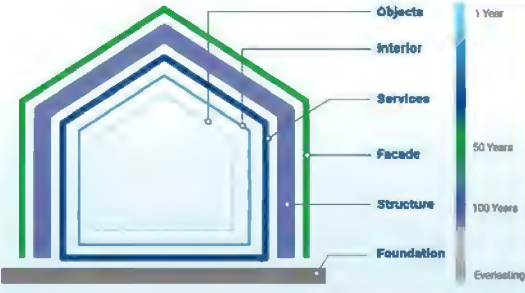



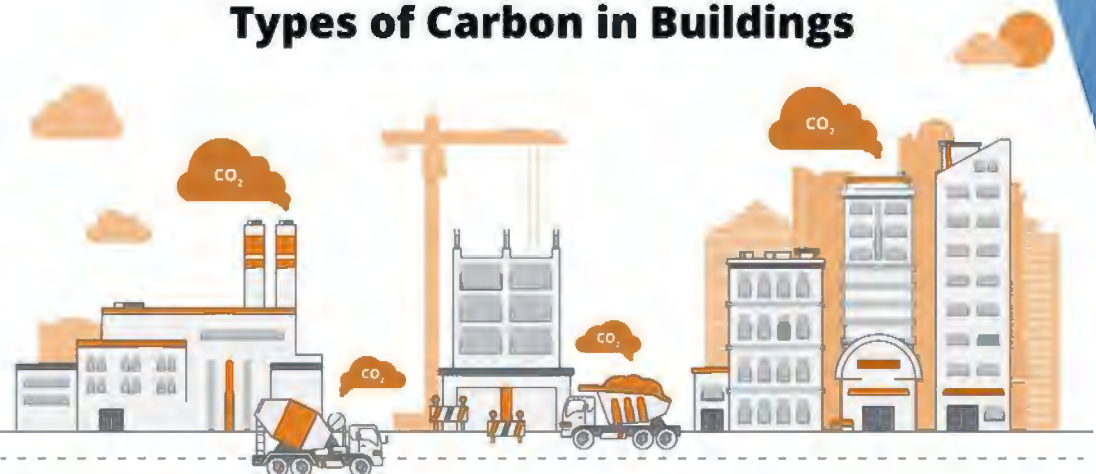
Figure 5: Elements of a building and their typical lifetimes, before replacement is needed*

Source: [WorldGBC Bringing Embodied Carbon Upfront \(2019\).pdf](#)



Embodied v Operational Carbon

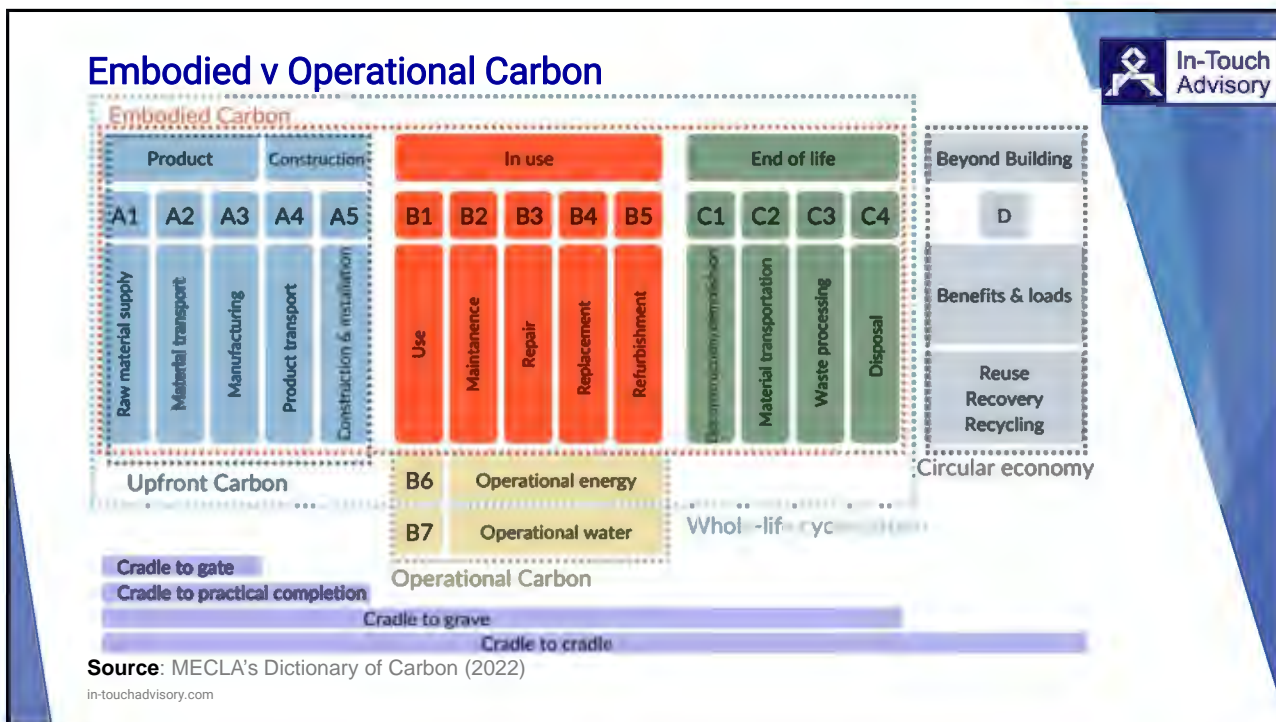
Types of Carbon in Buildings



Embodied Carbon
The emissions from manufacturing, transportation, and installation of building materials.

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Operational Carbon
The emissions from a building's energy consumption.



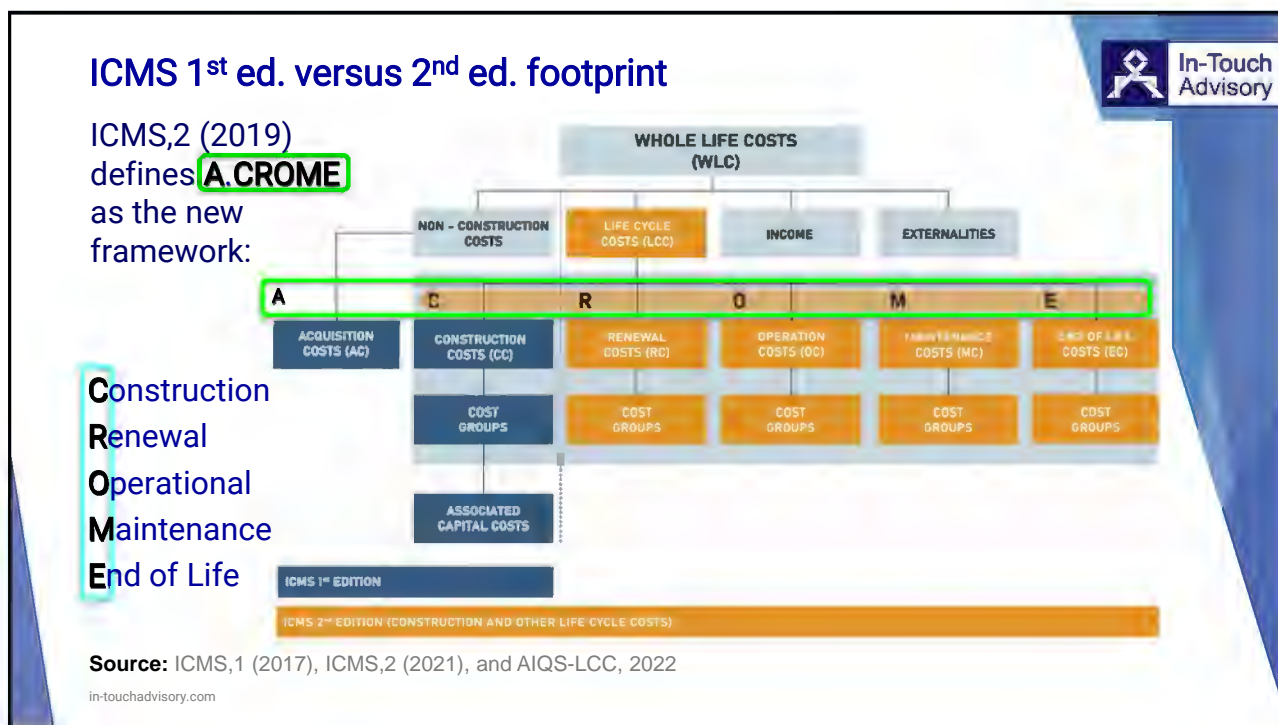
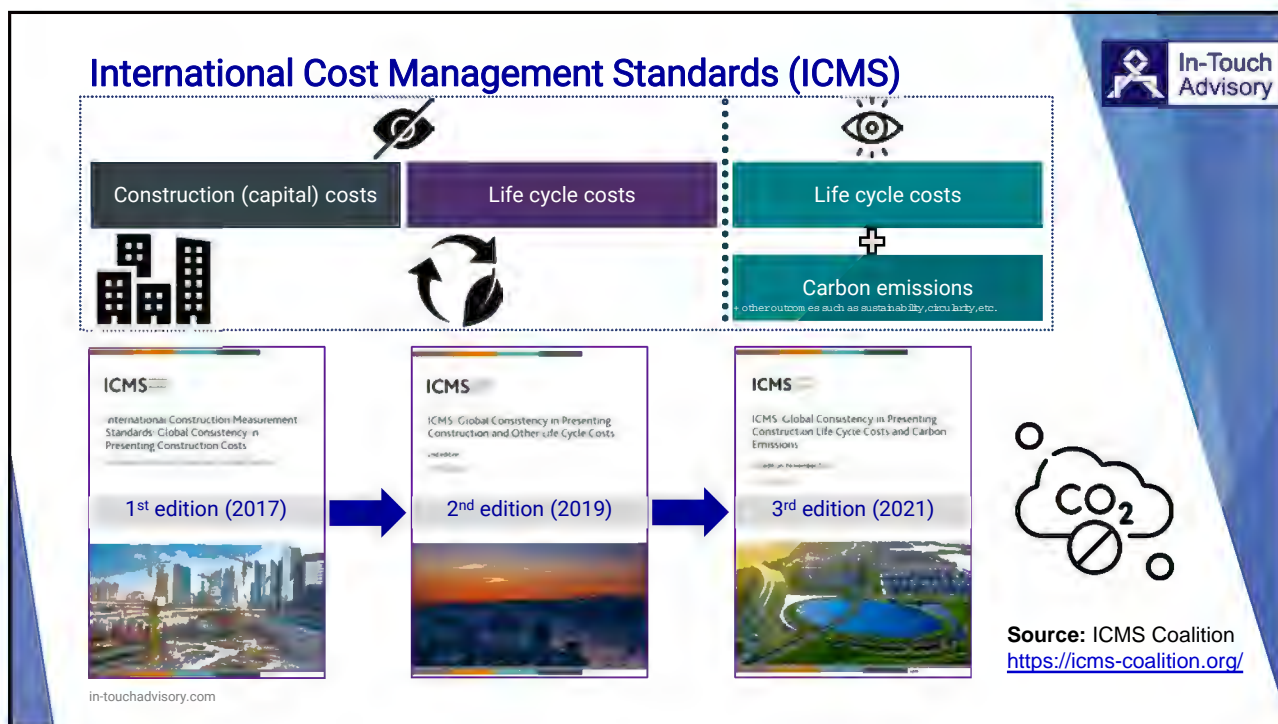
ISO/TC 267 Facility Management (FM)

"If you can't measure it, you can't manage it"
Peter Drucker (1909-2005)

OR

"If you can't measure it, you can't improve it"
Lord Kelvin (1824-1907)

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C.R.O.M.E. explained



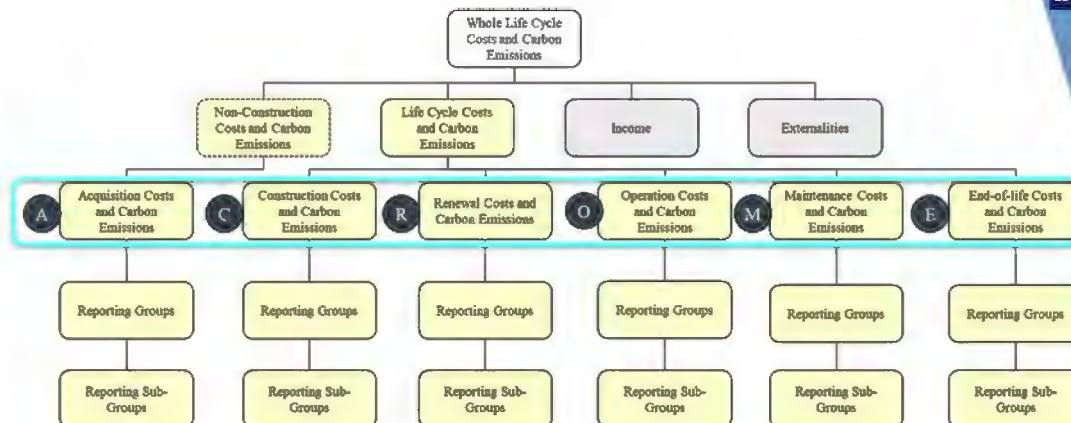
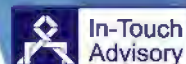
ICMS,2 (2019) **CROME** approach as a relationship framework of the significant contributors to the asset / facility life cycle.

❑ **COST** is a powerful communications tool across the influencers.



Source: ICMS,1 (2017); ICMS,2 (2021); and AIQS-LCC Analysis (2022)
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International Cost Management Standards (ICMS,3)



ICMS,3 provides a "high-level taxonomy and format for classifying, defining, measuring, recording, analysing and presenting life cycle costs and carbon emissions associated with built assets"

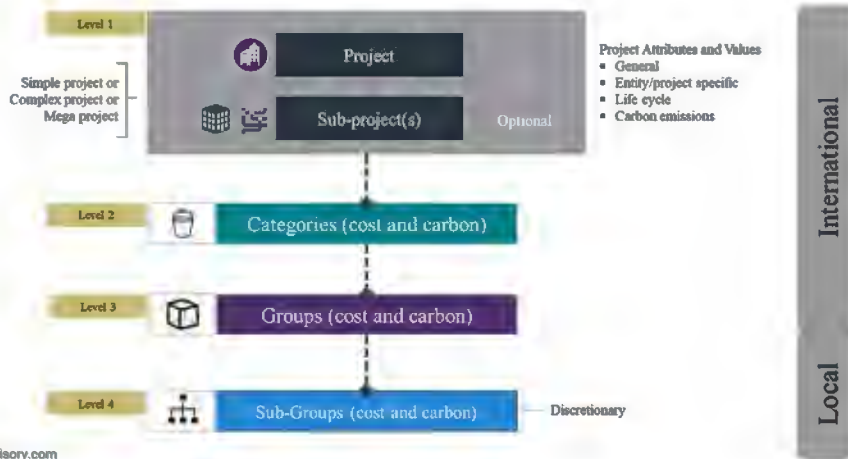


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Sample projects

Our paper provides two (2) case studies in the ICMS format:

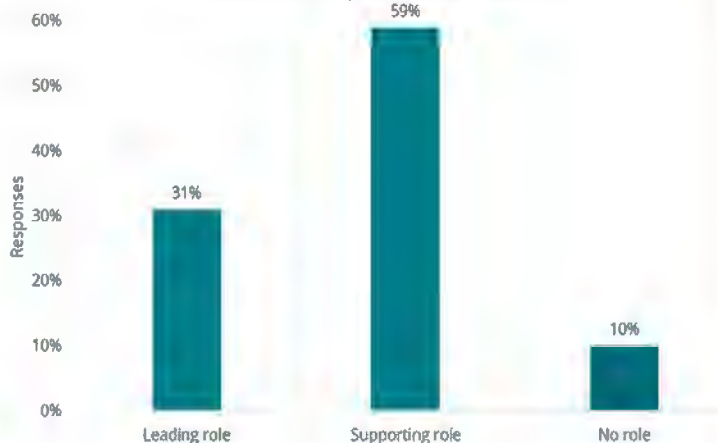
- i. Life cycle costing of alternatives.
- ii. Carbon footprint calculations



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Role of the Quantity Surveyor (QS)

What is the role of a QS professional in carbon calculations for projects and assets?



Source: RICS Sustainability Report 2022

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Cost management professionals and quantity surveyors (QS) are poised to take a central role in a holistic carbon strategy.

This includes the **analysis and benchmarking** of the costs or availability of low-carbon products, materials, and components.

ICMS now provides a **globally consistent and integrated method** for classifying, measuring, and reporting life cycle costs and carbon emissions for buildings and infrastructure projects.

Cost Management Life Cycle

1. Brief
2. Outline Proposals
3. Sketch Design
4. Documentation
5. Tender
6. Construction
7. Renewal
8. Operation
9. Maintenance
10. End-of-Life

FACILITY LIFE PHASES	PROJECT OBJECTIVES / ACTIVITIES TO BE COMPLETED	BASIS & DOCUMENTS REQUIRED	COST MANAGEMENT ACTIVITIES	LCC INTERFACES & DELIVERABLES
DESIGN	1. Brief	Client Brief / sketches or reference information	Brief / Scope Cost / Indicative Cost	Business Case or Feasibility Study inputs based on facility policy and functional objectives
	2. Outline Proposals	Scope of works (lean type, location, plan, building shape, etc.) and functional needs	Outline Proposal Cost / Preliminary Estimate	LCC Cost Budgets related to project planning, tenders and life expectancy targets
	3. Sketch Design	Dimensioned sketch plans, elevations and sections, conceptual sketches and specifications	Sketch Design / Cost Estimate / Cost Plan	LCC Cost Planning with comparative analysis and option selection
	4. Documentation	Final working drawings and specifications prior to tender	Tender Cost Plan (Tender Estimate)	LCC Cost Plan per design
Project planning, selection of contract policies, standards, strategic objectives and understanding of risks and target LCC requirements.				
CONSTRUCTION	5. Tender	Pricec Bill or Schedule of Prices	Tender Report/contract administration and analysis	LCC Cost Plan per tender
	6. Construction	For construction documents	Final Account/contract administration and resolution	Project Monitoring management review and option refinement
Performance benchmark evaluation of facility plans, standards, monitoring, benchmarking and steering target LCC requirements.				
ASSET / FACILITIES MANAGEMENT	7. Strategic	Costs of replacing a Facility, Constructed Asset and/or major components once they reach the end of their life, and which the client decides are to be included in the capital rather than the revenue budget.		CAPEX budget on support the service delivery plan
	8. Operational	Costs of running and managing a Facility, Constructed Asset including administration, support services, rent, insurance, energy and other environmental/regulatory imposed costs, taxes and charges		OPEx budget to support the service delivery plan
	9. Sustainability	Costs of corrective responses and preventative maintenance on a Facility, Constructed Asset or its parts and all associated management, cleaning, services, repairing, replacing or replacing of parts		Maintenance Plan to support the service delivery plan
	10. End-of-life	Net costs or fees for disposing of an asset at the end of its service life after deducting the salvage value and other income due to disposal, including costs resulting from disposal regulation, decontamination and decontamination, demolition and reconstruction requirements, asset transfer obligations, recycling, recovery, disposal of components and materials, and transport and regulatory costs.		Business Case or Feasibility Study inputs based on facility policy, functional objectives, performance status and applicable regulatory and statutory requirements

Source: AIQS' Information Paper Life Cycle Cost Analysis (2022)

Cost Prediction

Focus on the role of risk recognition in the consistent and reliable forecasting of the **out-turn cost** / final account cost targets.

Context

1 Defining external / internal frameworks and parameters for Costs Predictions.

Process

2 Describing the inputs and outputs, process maturity, de-biasing, and risk treatments.

Data

3 Identifying data sources, structures, curation, AI technologies, and re-basing.

Outputs

4 Developing Cost Prediction expectations and ICMS compliant reporting templates.

Aligning with ICMS,2 (2019), the RICS' Cost Prediction Professional Statement (2020) provides mandatory requirements for RICS members and regulated firms without specifically dealing with carbon emissions.

COST PREDICTION

Global
1st edition, November 2020

Source: RICS' GPSCP (2020) <https://rics.org>

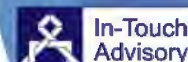
Sustainable Development Goals (SDGs)

Source: United Nations <https://sdgs.un.org/goals>
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ISO 41000 series of Facility Management standards

Source: [ISO/TC 267 committee website](https://www.iso.org/committee/44116111) ISO/TC 267 as at May 2023
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ISO 41000 series: towards Sustainable FM



- ❑ ISO/TC 267 January 2020: formed a 14 member **SDG Task Group** from 8 countries in to determine the ISO 41000 series alignments to the UN's SDGs and prepare a plan to enhance FM standards.



- ❑ ISO/TC 267 committed in 2021 to developing **ISO/TR 41019** "*The role of FM in sustainability, resilience and adaptability*" based on the alignment of the ISO 41000 series with the **UN's SDGs**.

ISO/TC 267's ISO 41000 series FM standards

SUSTAINABLE DEVELOPMENT GOALS

This committee contributes with 10 standards to the following



Source: [ISO/TC 267 - Facility Management](#)

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ISO/CD TR 41019 sustainability, resilience & adaptability




- ❑ **Deliverable:** an ISO Technical Report, FM standards and SDGs.
- ❑ **Status:** Committee Draft (CD) under TC 267 review, publication **due late 2023**.
- ❑ **Scope:** FM's role in sustainability, resilience, adaptability, etc.
 - ❖ Introduction, scope, terms and definitions.
 - ❖ Concepts, context and challenges (background, history, performance reporting, climate change, net-zero emissions, and the circular economy, etc).
 - ❖ UN's Sustainable Development Goals (SDGs).
 - ❖ Role of ISO standards in supporting the SDGs.
 - ❖ FM and SDGs for sustainability, resilience and adaptability.
 - ❖ Role of current and planned ISO 41000 series standards.
 - ❖ Transformation and towards Sustainable FM.
 - ❖ Annexures: A) SDG alignment matrices, B) Sustainable FM in 10 steps, C) Related ISO resources.
 - ❖ Bibliography.
- ❑ **Style:** concise and practical guidance for FM professionals.

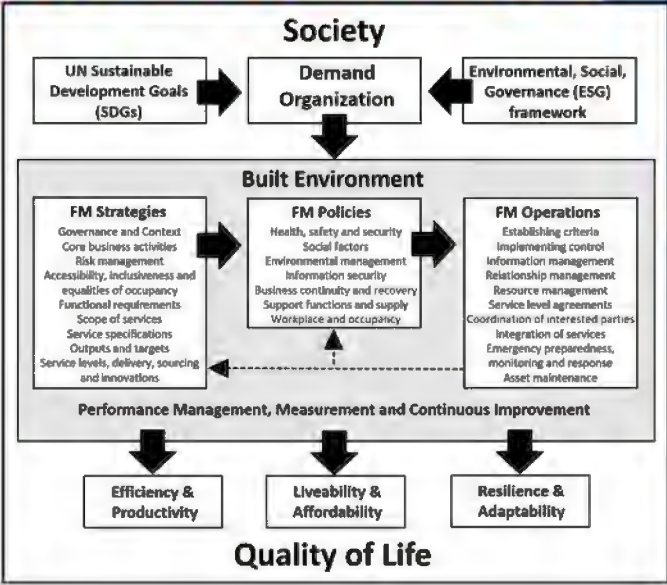


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ISO/CD TR 41019 sustainability, resilience & adaptability




- ❑ **Demand Organizations** live within a societal context.
- ❑ **ISO/TR 41019** demonstrates the wide-ranging and positive contribution that FM can make through its managing the **Built Environment**
- ❑ The need to embrace the SDGs and ESG framework to deliver outputs that support society, and enhances dimensions of our **Quality of Life**.



The diagram illustrates the ISO/CD TR 41019 framework. At the top, 'Society' is influenced by 'UN Sustainable Development Goals (SDGs)' and an 'Environmental, Social, Governance (ESG) framework', both pointing to 'Demand Organization'. 'Demand Organization' then points to the 'Built Environment'. The 'Built Environment' is composed of three main areas: 'FM Strategies' (Governance and Context, Core business activities, Risk management, Accessibility, inclusiveness and equalities of occupancy requirements, Functional requirements, Scope of services, Service specifications, Outputs and targets, Service levels, delivery, sourcing and innovations), 'FM Policies' (Health, safety and security, Social factors, Environmental management, Information security, Business continuity and recovery, Support functions and supply, Workplace and occupancy), and 'FM Operations' (Establishing criteria, Implementing control, Information management, Relationship management, Resource management, Service level agreements, Coordination of interested parties, Integration of services, Emergency preparedness, monitoring and response, Asset maintenance). A dashed arrow indicates a feedback loop from 'FM Operations' back to 'FM Strategies'. Below these is a box for 'Performance Management, Measurement and Continuous Improvement', which leads to three outcomes: 'Efficiency & Productivity', 'Liveability & Affordability', and 'Resilience & Adaptability', all contributing to 'Quality of Life'.


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ISO/CD TR 41019 and Performance Reporting



Risks are always relevant to FM budgets and capital projects, with substantive evidence of the focal areas for **performance measuring and reporting**, such as:

- ❖ Sustainability reporting.
- ❖ Third party assurance and integrated reporting.
- ❖ Greenhouse gas (GHG) emissions and reduction goals.
- ❖ Risks with respect to climate change, and loss of biodiversity.
- ❖ Alignment of activities with SDGs.
- ❖ Working environments (indoor air quality, etc.).
- ❖ Emergency preparedness and business continuity planning.
- ❖ Resilience assessment of internal systems and external supply chains.




FM plays a key role in taking the bold and transformative steps required to shift the world onto a more **sustainable, resilient and adaptive path**, aligning business cases and FM reporting to recognized standards is essential.


The **ISO 41000 series** of FM standards provides a useful performance framework.

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Sustainability, Resilience and Adaptability



Is FM ready for the Third Wave? now for Sustainable FM



Changes:

- People
- Place
- Processes

Metrics:

- Efficiency
- Productivity
- Liveability
- Affordability
- Resilience
- Adaptability

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Sustainable FM = ISO 41000 series plus



- ❑ **Transformation...** for sustainability, resilience and adaptability.
- ❑ Management Systems Standards, such as:
 - ISO 9001: 2015 Quality Management
 - ISO 14001: 2015 Environmental Management
 - ISO 22301: 2019 Security & Resilience / Business Continuity Mgt.
 - ISO 27001: 2013 Information Security Management
 - **ISO 41001: 2018 Facility Management**
 - ISO 44001: 2017 Collaborative Business Relationship Management
 - ISO 45001: 2018 Occupational Health & Safety Management
 - ISO 46001: 2019 Water Efficiency Management
 - ISO 50001: 2011 Energy Management
 - **ISO 55001: 2014 Asset Management**



Plus new: ISO/TC 323 for Circular Economy standards

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Additional References & Resources



MECLA Glossary Dictionary of Embodied Carbon (2022):

Materials and Embodied Carbon Leaders' Alliance (**MECLA**) is a collaboration of organisations who have come together to drive reductions in embodied carbon in the building and construction industry. They seek to align with the Paris Agreement targets and principles of the circular economy and recognise that the building and construction sector is a complex ecosystem.



- Report released May 2022.
- Uniform vocabulary guidance.
- Available: [MECLA-Glossary-Dictionary-of-Embodied-Carbon-final-17052022.pdf](#)

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Additional References & Resources



AIQS' Information Paper Life Cycle Cost Analysis (2022) taking account of the:

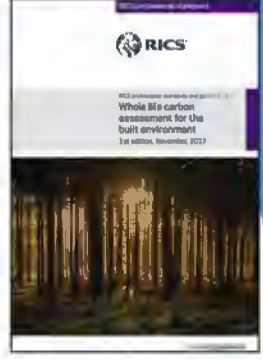
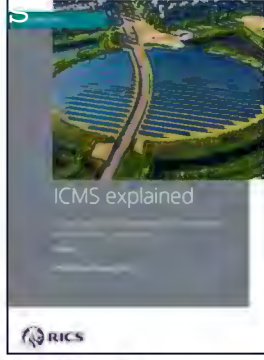
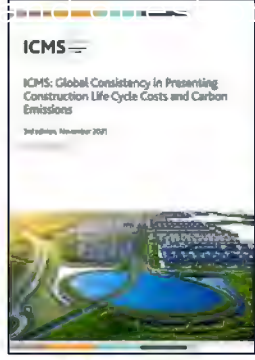
- ISO 15686-5: 2017 Buildings and constructed assets, Service Life Planning - Part 5: Life-cycle costing.
 - ICMS 2nd edition (2019) and ICMS 3rd edition (2021).
 - AIQS' Australian Cost Management Manual: Vol.1, (4th ed).
 - AS ISO 41000 series of Facility Management standards and AS ISO 55000 series of Asset Management standards.
 - and other leading publications and relevant guidelines.
- New, concise and practical guidance.
 - Report released February 2022.
 - Available: [Insights – In-Touch Advisory](#) or <https://aiqs.com.au>



Source: AIQS-LCC (2022)

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Additional References & Resources

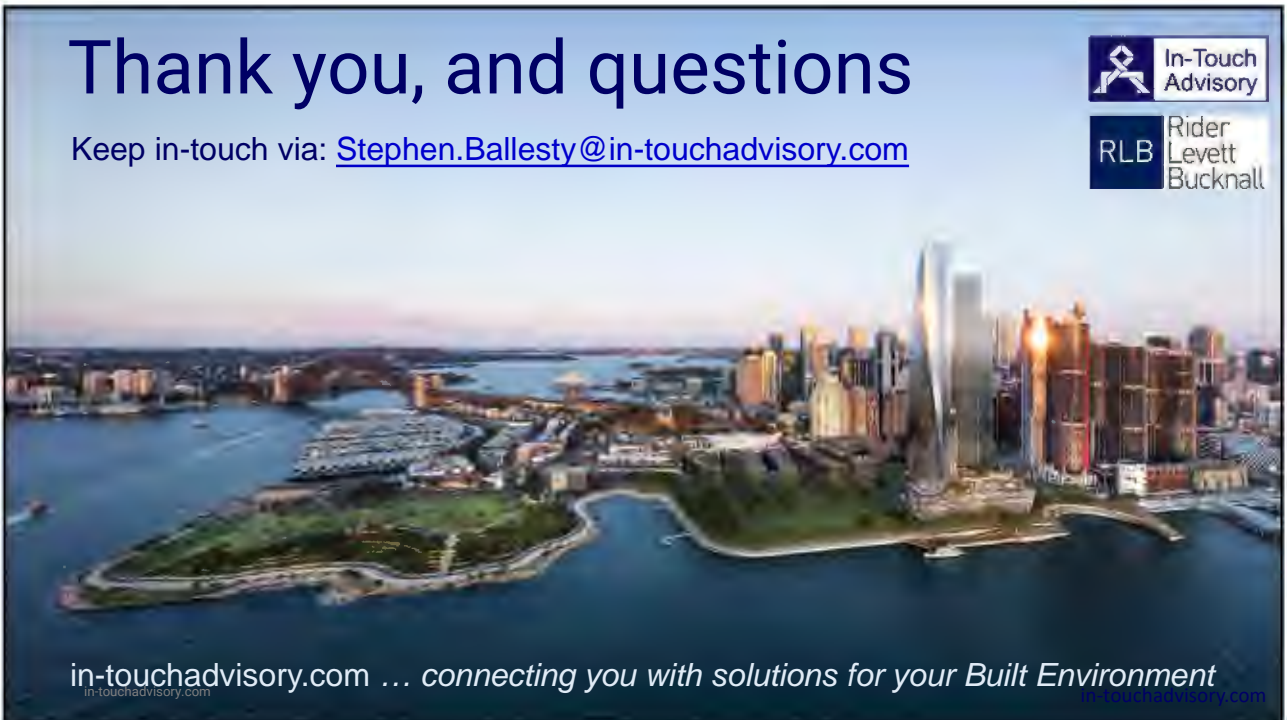


Also refer: [RICS Profession & Standards \(rics.org\)](https://www.rics.org) & [Resources – In-Touch Advisory \(in-touchadvisory.com\)](https://www.in-touchadvisory.com)

[in-touchadvisory.com](https://www.in-touchadvisory.com)

Thank you, and questions

Keep in-touch via: Stephen.Ballesty@in-touchadvisory.com



[in-touchadvisory.com](https://www.in-touchadvisory.com) ... connecting you with solutions for your Built Environment