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Making the Case

Cost optimization for a Sustainable Built Environment

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Making the Case: Cost optimization for a Sustainable Built Environment

Facilities are complex and challenging to compare and contrast, but one common metric often used to express or explain facility management performance is cost in all its forms (capital, operational, maintenance, whole life, etc.). Cost, in combination with other indicators, is a major consideration for most throughout the facility life cycle.

Hence, access to quality data and an understanding of cost management approaches is critical for FM to be part of the decision-making conversation and demonstrate FM's value.

Accurate, reliable and timely information is necessary for effective decision-making, whether these decisions are undertaken by individuals, communities, businesses or government organizations. Notwithstanding the range of key performance indicators (KPIs) available, cost performance remains an essential component of any effort to persuade others to make different decisions from the ones which they might otherwise make.

The same can be said for the design, delivery and management of the built environment in support of quality of life.

The absence of accurate, reliable and timely information can lead to ill-informed or bad decisions, as well as the inability to persuade or support others to make better decisions, or to be held fully accountable for the outcomes of various project and facility decisions. In short, information management is at the core of FM's ability to influence outcomes.

To truly achieve a sustainable built environment, the FM challenges include budgeting for long-term sustainability, resilience and adaptability planning. This requires decision-makers to have access to comparable and consistent data, improved cost prediction and enhanced life cycle cost (LCC) analysis to support cost-performance across a range of metrics.

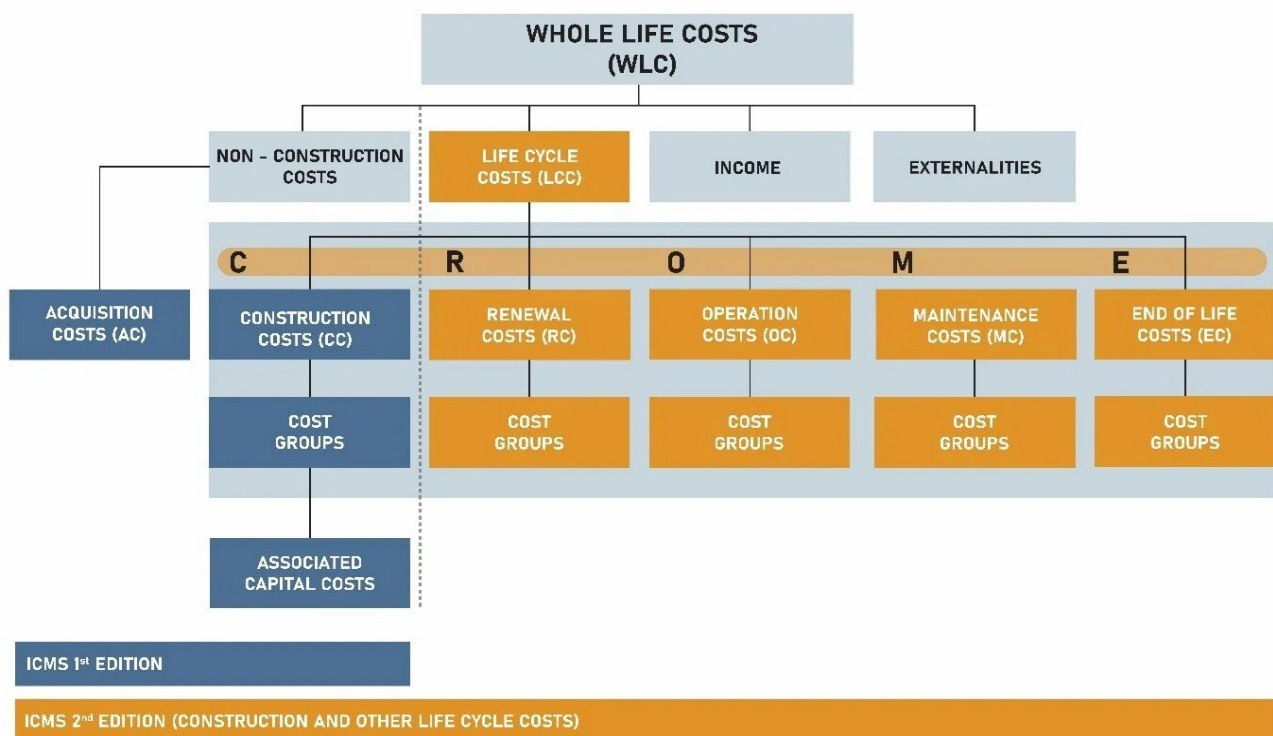
In recent years progress has been made, with at least three separate global cost management initiatives from the ICMS Coalition, RICS and AIQS that FMs should be aware of and could adapt as appropriate to their situation. Do you have these in the FM toolbox?

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The [ICMS Coalition](#), founded in 2015, comprises 47 non-governmental, not-for-profit professional bodies focused on achieving consistency in construction project cost reporting and benchmarking. ICMS provides a high-level structure and format for classifying, defining, measuring, recording, analyzing and presenting capital and life cycle costs, intended to complement existing local/national standard methods of measurement.

This enhanced consistency and transparency across international boundaries is intended to lead to more confidence in global investment projects and reporting.

The first edition of ICMS (2017) focused on creating a standard approach for capital cost classification and reporting. The second edition, ICMS (2019), extended global cost classifications based on a new acronym CROME (groupings for Construction, Renewal, Operation, Maintenance and End-of-life costs) – all components that have a direct impact on FM outcomes. ICMS (2019) better connects FM to the project planning phases, investment decisions and construction cost management of the facility life cycle.

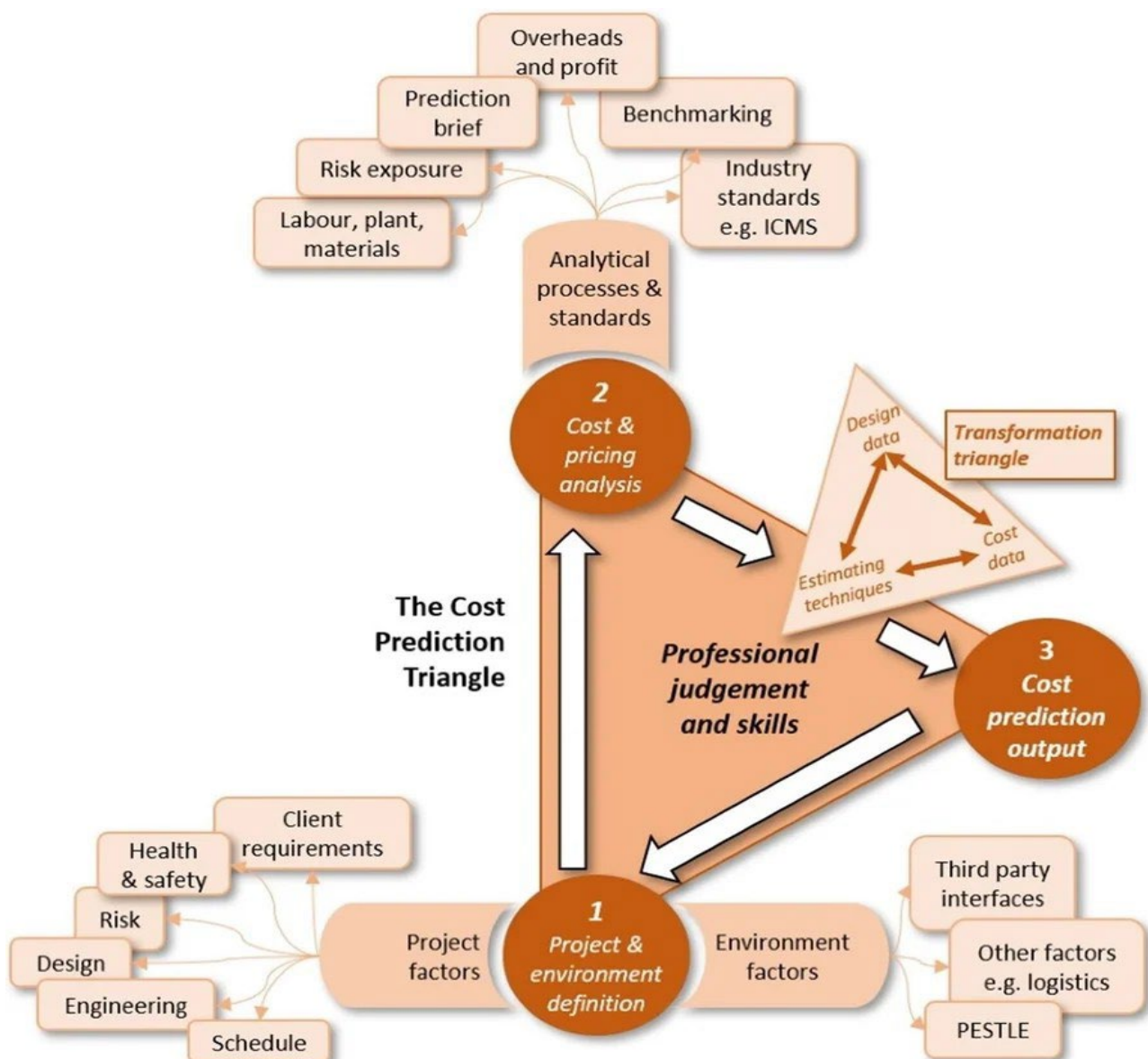


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The third edition, ICMS (2021), recognizes the criticality of reporting carbon emissions consistently if the impacts of global climate change are to be averted. A common global reporting framework for capital costs, life cycle costs and carbon emissions will allow for their interrelationship to be more readily explored. Consistency in data management across the facility life cycle should provide decision-makers with improved transparency on the cost and carbon relationship, contributing to achieving a sustainable built environment.

In combination with other measures, the ICMS (2021) provides the potential for enhanced understanding and benchmarking of the metrics, which FM can utilize to add value not only for demand organizations but for society as a whole.

Cost prediction is dynamic, increasingly digital and relies on context, assumptions, data maturity, information completeness and risk management approach to achieve accurate, reliable and timely forecasts.



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Across various markets, by location and sector, cost prediction is approached in different ways with the same goal, providing certainty. RICS' professional statement not only elicits the key principles from these various approaches but sets out minimum mandatory requirements for RICS professionals and RICS-regulated firms to follow when producing cost predictions.

This document provides an overview of global practices and the implementation of ICMS (2019), and a reporting framework for construction and life cycle costs as a part of a whole life cost (WLC) approach. There is a recognition of the cyclical nature of the cost prediction process, and the importance of decisions on capital and longer-term costs that affect asset performance, longevity, resilience and sustainability – all issues which have a direct impact on FM outcomes.

There is a dual focus on project out-turn and life cycle costs regarding life safety and sustainability. This requires the management of expectations involving several integrated processes:

- definition of the project scope
- the setting of realistic/agreed goals
- a detailed plan with specified timelines
- budget agreement and adherence
- identification of common setbacks and
- regular communication.

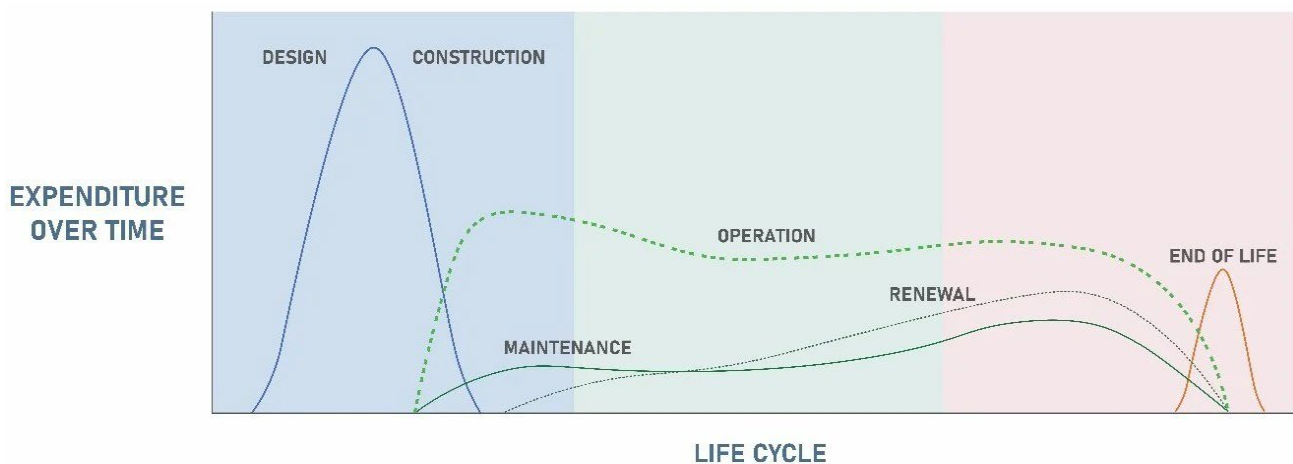
Throughout the paper there is a consideration of data, its origin, completeness, validity, consistency, timeliness and accuracy, across the data structure, metrics, acquisition, sources, rebasing and digitization. Also, consistent outputs reporting is considered essential to fully understanding risks and minimizing biases at the different stages of the cost prediction process, each reflecting the maturity of the data inputs.

Access to quality data improves decision-making ability and prediction accuracy.

As early as "Management Aspect of Terotechnology" (1976), life cycle costs were simply defined as being concerned with the "cost of ownership." Even then, this was not considered a new or radical concept. With today's global challenges, this AIQS information paper provides essential guidance for the context and practice of LCC analysis across all the facility life cycle or project phases.

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LCC analysis provides a valuable comparative and management tool that can influence the design, specification, construction, operations and sustainability performance. Increasingly stakeholders are seeking to apply responsible management principles, taking account of environmental, social and governance (ESG) criteria, for three broad areas of interest. These are stakeholders who consider it important to reflect their corporate values in their project objectives instead of merely the potential profitability and/or risk presented by an investment opportunity.



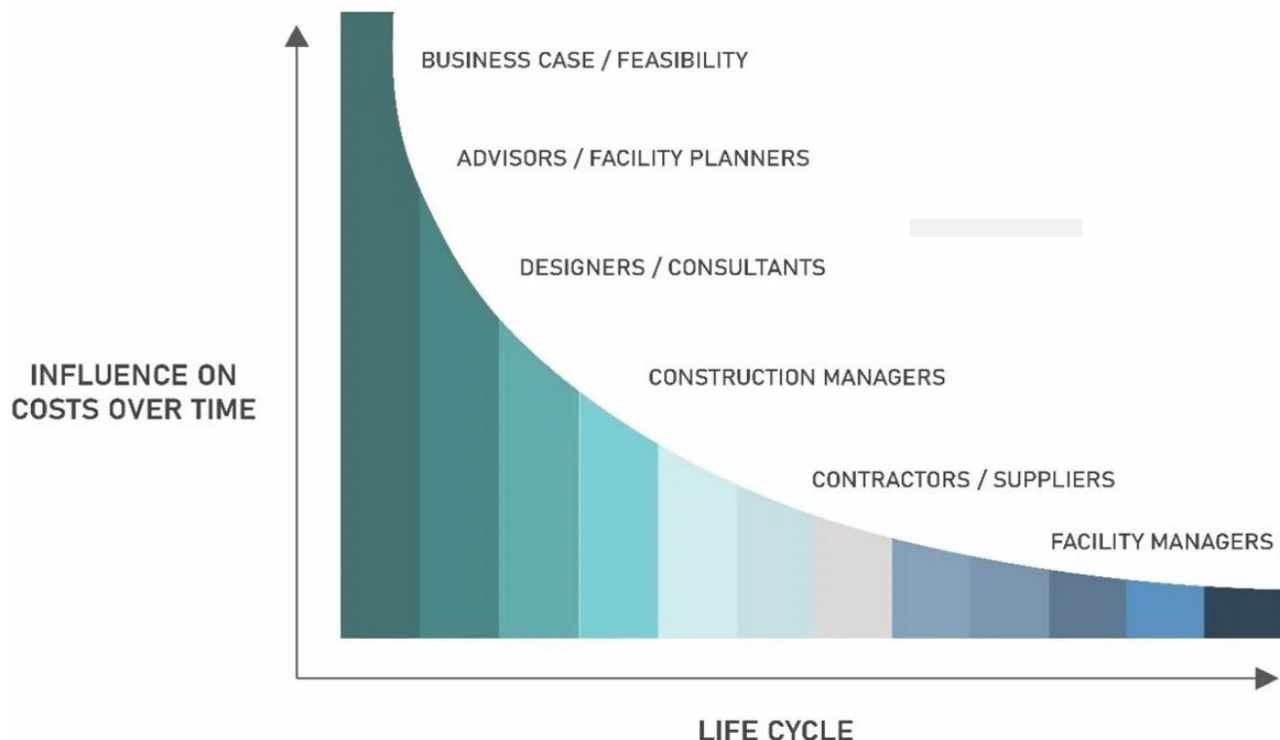
Cost management influence is throughout the facility life cycle at each project phase.

This LCC paper integrates elements of leading publications and relevant guidelines, specifically taking account of the latest in LCC thinking as a part of a whole life cost approach and drawn from:

- ISO 15686-5: 2017 Buildings and constructed assets, Service Life Planning - Part 5: Life-cycle costing.
- RICS' Cost Prediction, global professional statement, 1st edition (GPSCP 2020).
- International Construction Management Standard,
- Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions, 3rd edition (ICMS 2021).
- ISO 41000 series of Facility Management standards and ISO 55000 series of Asset Management standards.

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Moreover, the LCC paper takes account of the broad and integrated influences of a range of built environment professionals and decision-makers throughout the facility life cycle.



Additionally, multiple criteria and metrics are considered, and practitioners should be aware of project and facility risks, the circular economy concept, various types of obsolescence and the UN's 17 SDGs (sustainable development goals) – sdgs.un.org/goals.

The paper provides concise background and context, with specific advice on the relationship between WLC and LCC, the use of the ICMS' CROME. It also sets out the components and process of LCC analysis, details getting started including calculation methodologies, along with an overview of current technology and tools.

However, the risks and assumptions involved with undertaking LCC analysis can directly contribute to unrealistic expectations and/or failure to achieve desired outcomes. While the digitization of the delivery (design and construction) and management of the built environment holds great promise, the application of professional judgment does remain a determining factor in successful LCC analysis.

The paper provides a practical consensus on the key LCC issues. One attempt to demystify LCC analysis has been the preferencing of the term "service life" of a constructed asset or facility. This is considered as having the same meaning as economic, design, useful or effective life.

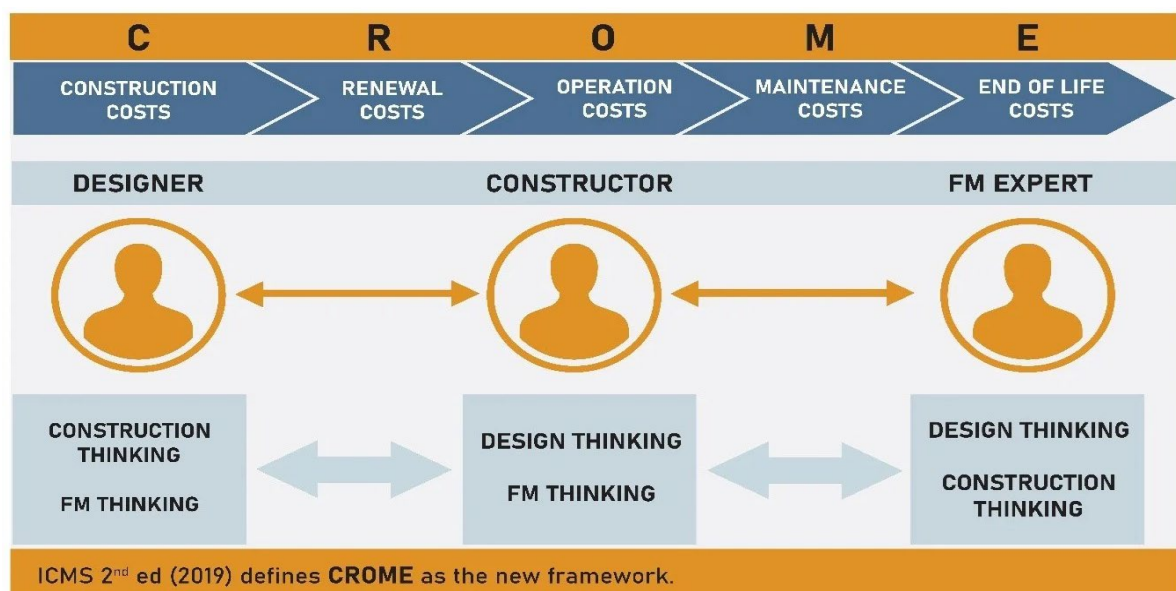
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A significant contribution of the paper is its facility life cycle examination, for the first time combining the AIQS' Australian Cost Management Manual and the ICMS' CROME (2019). A detailed table depicts the full scope of LCC outputs and deliverables across the facility life cycle grouped into the three principal life-cycle phases of design, construction and asset/facilities management. These three phases are then further broken down into a 10-stage project life framework.

The LCC process requires a level of due diligence from all interested parties and involves assessing costs incurred and evaluating alternatives that have impacts on the total costs of the constructed asset or facility throughout its life cycle.

However, experience has shown life cycle data to be notoriously scant and that the matter of LCC analysis can be more complex than appears at first glance. Successful LCC analysis requires knowledge and understanding of:

- interested parties and stakeholders' ownership objectives.
- end users' operational objectives.
- design intent, functional requirements and variables.
- project scope, status and available relevant data/documentation.
- life expectancy concept and the related impacts that affect facility performance.
- LCC analysis techniques, databases, the necessary inputs and risk assessments.
- LCC analysis formulation, presentation and interpretation.
- consistent application of established terminology, standards and calculation methodology.



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Accepting the challenge

Cost provides a vital FM tool to communicate value and integrate responsible decision-making across the facility life cycle to deliver a more sustainable, productive and livable built environment for all.

To truly achieve solutions for a sustainable built environment, organizations can no longer afford consistency of processes and terminology, rigorous cost prediction, WLC approach and LCC analysis to be seen as an add-on or optional activities.

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

He is a Life Member of FMA Australia, the Founder / Director of In-Touch Advisory and is a member of the IFMA Standards Committee. As an industry leader, Stephen has contributed to a wide range of initiatives and guides, including FM, Cost Prediction and Life Cycle Costing. He has also served in multiple roles on behalf of Standards Australia as part of ISO/TC 267 since 2012 developing the ISO 41000 series of FM standards.

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