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In-Touch Advisory

2022 ASSET MANAGEMENT COUNCIL

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How's your bottom line? ...embracing Life Cycle Cost analysis

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In-Touch Advisory

... connecting you with solutions for your Built Environment



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In-Touch Advisory



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- ❑ Stephen's consulting firm **In-Touch Advisory** connects stakeholders with solutions for the Built Environment across the property–construction–facilities life cycle.
- ❑ As a Quantity Surveyor, prior to In-Touch Advisory, Stephen had a distinguished career with RLB spanning four decades, including leading Advisory and Research initiatives. Amongst his professional honours in 2013 he received an AIQS Lifetime Achievement Award.
- ❑ 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 the IFMA Research Committee, IFMA Foundation and FMA Australia.
- ❑ Some recent relevant publications that he has contributed to include the:
 - AIQS' Information Paper on Life Cycle Cost Analysis, 1st edition, 2022.
 - RICS' Professional Statement, global: Cost Prediction, 1st edition, 2020.
 - RICS' Guidance Note, global: Technical Due Diligence, 1st edition, 2020.
 - and the ISO 41000 series FM standards.

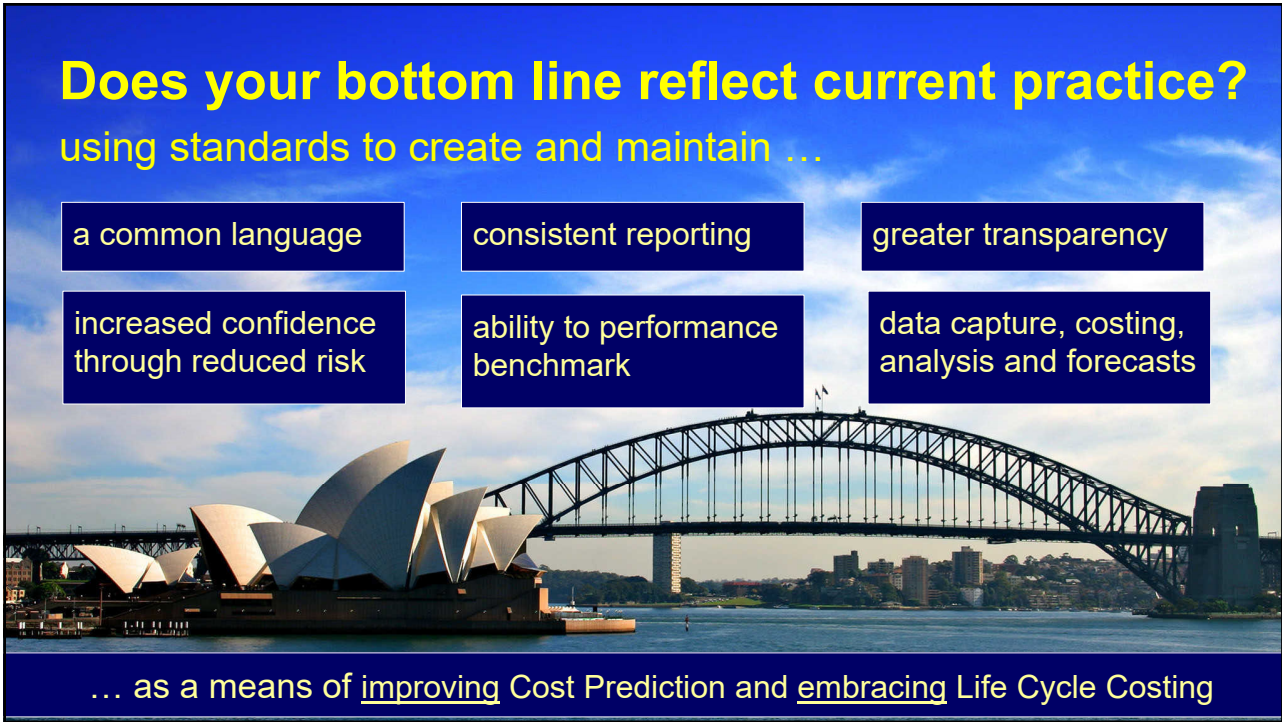
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Acknowledgement: AIQS ICMS INTERNATIONAL CONSTRUCTION MEASUREMENT STANDARDS RICS
Some content and images are courtesy of the AIQS, the ICMS Coalition and the RICS



How's your bottom line?
what if its inconsistent, undisciplined or just left to chance ...

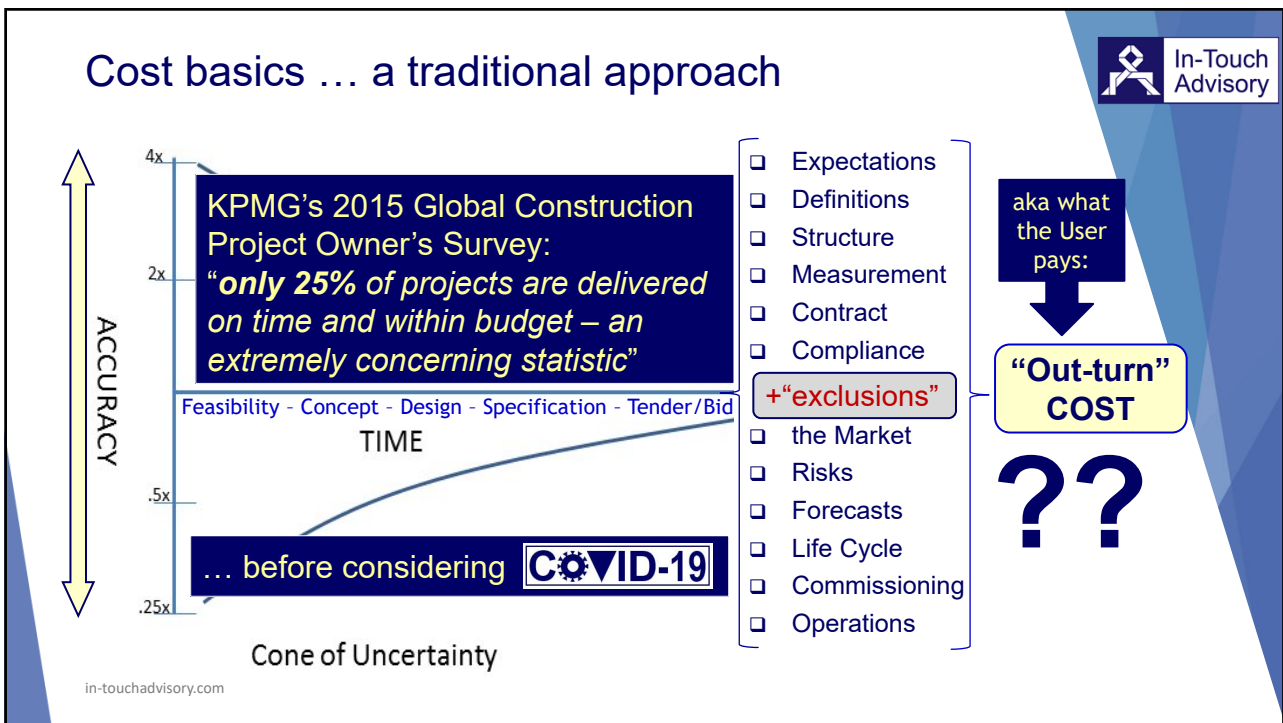
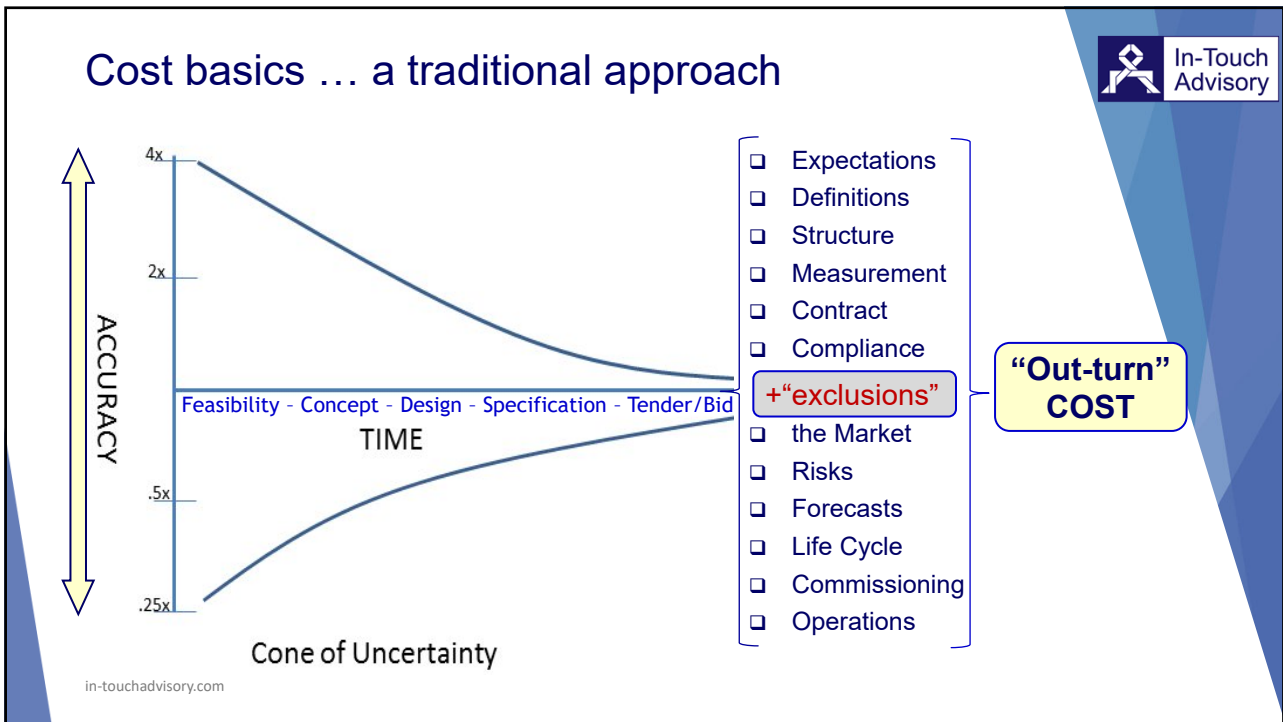
... imagine a world without standards ... or consistent Cost Prediction



Does your bottom line reflect current practice?
using standards to create and maintain ...

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

... as a means of improving Cost Prediction and embracing Life Cycle Costing

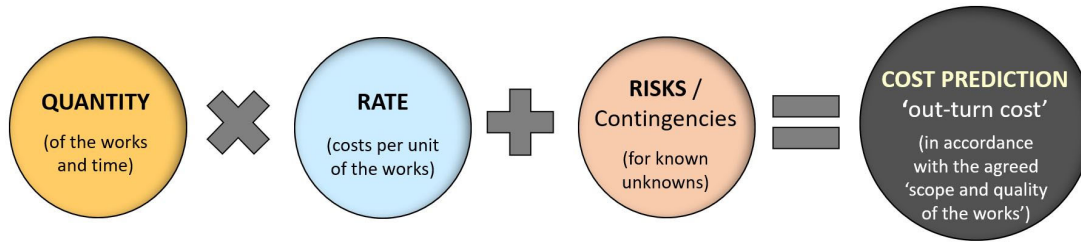




Cost Prediction

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

Source: RICS' Global Professional Statement on Cost Prediction (GPSCP 1st edition, 2020)



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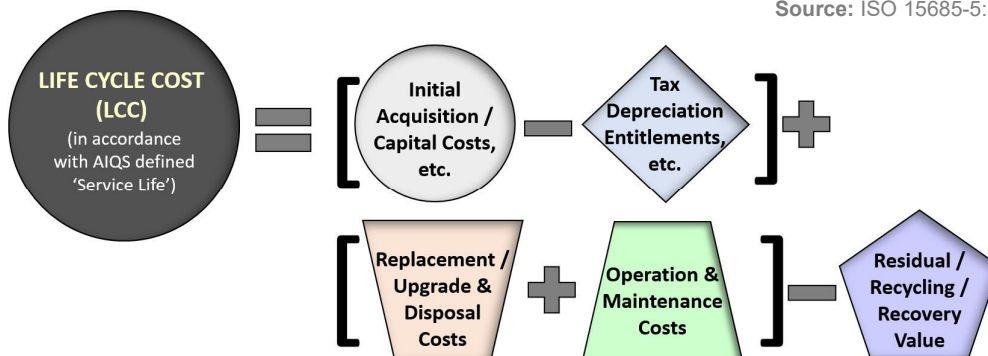
This formula depicts the simplicity of the contemporary approach to Capital Works estimating. Noting ISO 31000:2018 defines risk as the “effect of uncertainty on objectives”.



Cost Prediction

□ **Life Cycle Cost (LCC):** “Cost of an asset or its parts throughout its life cycle, while fulfilling the performance requirements”

Source: ISO 15685-5: 2017



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$$LCC = (AC - TD) + (OC + RC) - RV$$

Plus: adjusting for the time value of money, Net Present Value (NPV) preferred by ICMS.

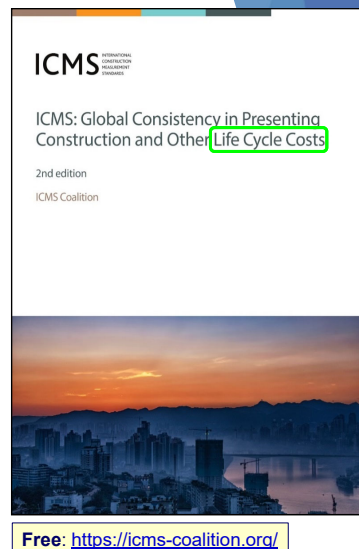
International Construction Measurement Standard (ICMS)



- ❑ **ICMS Coalition** formed in 2015, now with 47 cost professional bodies worldwide (incl. AIQS & RICS).
- ❑ **ICMS** scope covers buildings and civil engineering assets.
- ❑ **ICMS#1** released July 2017, *capital cost focus*.
- ❑ **ICMS#2** released September 2019, *plus LCC*.
- ❑ 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** (2019).

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Source: ICMS Coalition



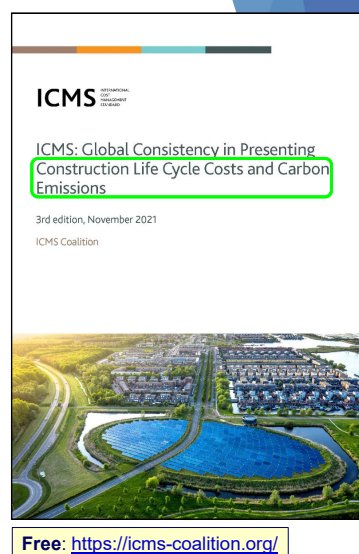
International Construction Management Standard (ICMS)



- ❑ **ICMS Coalition** public consultation (July – Sept. 2021), published 30 November 2021:
 - Name change
 - Carbon emissions
 - Five new project types
- ❑ **ICMS#3** will provide... “a common reporting framework for capital costs, **life cycle costs** and carbon emissions” ...recognises interrelationships to improve decision making... “about the design, construction, operation and maintenance of the built environment that optimises environmental sustainability”.

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Source: ICMS Coalition

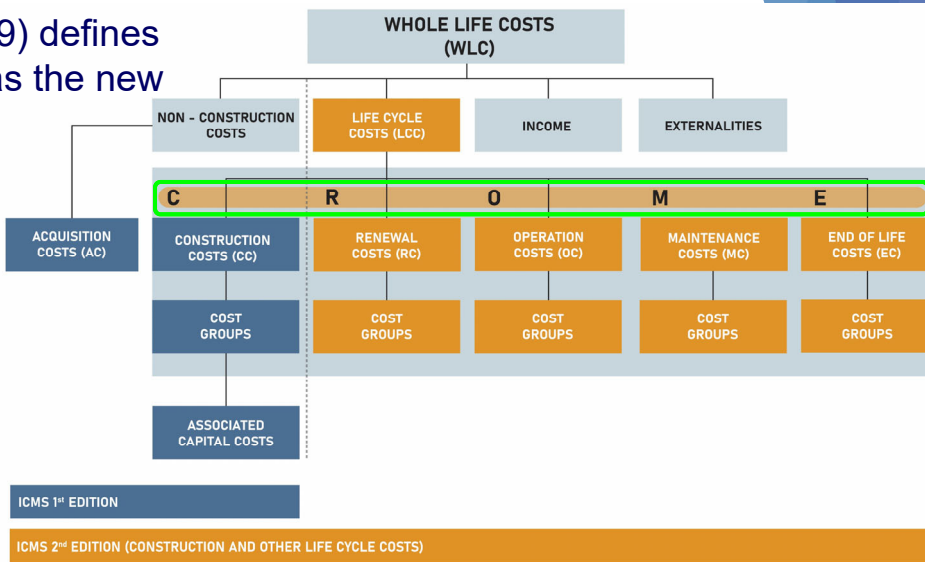




ICMS 1st ed. versus 2nd ed. footprint

ICMS#2 (2019) defines **C.R.O.M.E.** as the new framework:

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

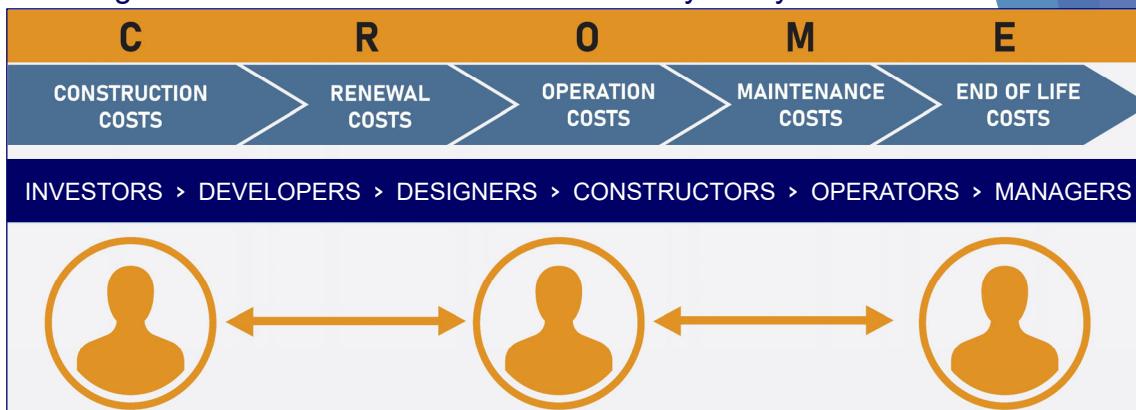


Source: AIQS-LCC, 2022
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C.R.O.M.E. explained

ICMS#2 (2019) **C.R.O.M.E.** approach as a relationship framework of the significant contributors to the asset / facility life cycle.



Cost is a powerful communications tool.

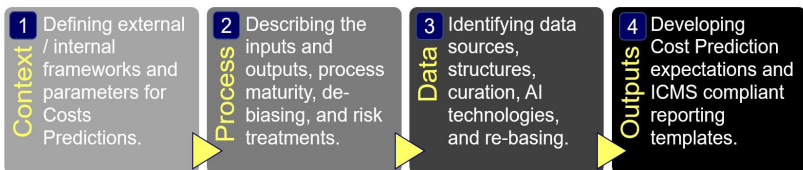
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Source: ICMS#2 (2019), ICMS#3 (2021), and AIQS-LCC, 2022

RICS' Cost Prediction Professional Statement (2020)



- ❑ Aligned to ICMS#2 (2019) and published Nov. 2020 with mandatory requirements for RICS members and regulated firms.
- ❑ Focus on the role of risk recognition in the consistent and reliable forecasting of the **out-turn cost** / final account cost targets.



- ❑ 22 participants from 12 countries, over two (2) years with three (3) workshops in London.

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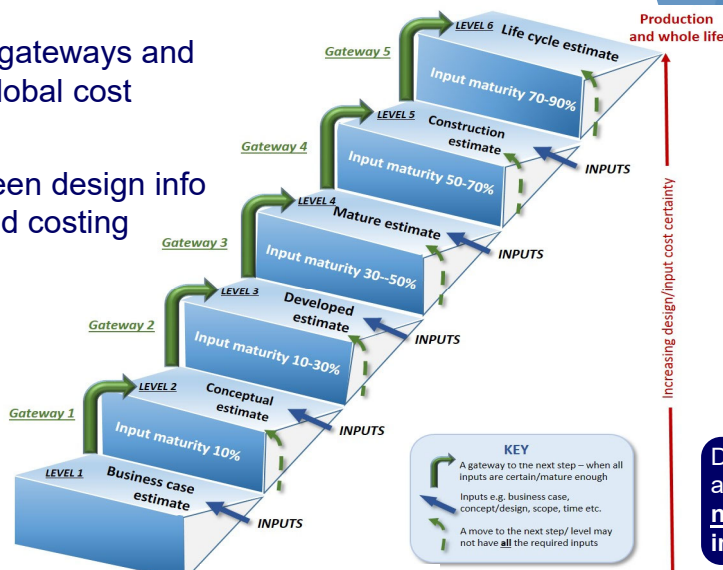
Source: RICS' GPSCP (2020)

Free: <https://rics.org>

RICS' Cost Prediction Professional Statement (2020)



- ❑ A common framework, gateways and process language for global cost prediction.
- ❑ Direct correlation between design info / data completeness and costing accuracy by level.
- ❑ Progressive inputs and data curation.
- ❑ Minimising risk, bias and uncertainty.
- ❑ WOL considerations throughout.



Design is an input, not the input.

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Source: RICS' GPSCP (2020)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



- ❑ **AIQS & In-Touch Advisory** undertook research and industry consultation into LCC 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.



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Source: AIQS-LCC (2022)

Free: <https://aiqs.com.au>

AIQS' Information Paper Life Cycle Cost Analysis (2022)



- ❑ LCC processes, benefits, risks, and techniques recognising that **LCC analysis** has two (2) main applications:
 1. **Comparative tool** to evaluate different options, design solutions, components, or materials in support of strategic planning and investment decisions – *typically **Design and Construction** life cycle phases.*
 2. **Management tool** to provide a basis for improved budget planning and expenditure forecasts to support longer-term operational performance – *more commonly **Asset / Facilities Management** project life cycle phases.*



D.M.A.I.C. is an improvement cycle commonly used as a core tool used to drive Six Sigma projects.

... improved communication and informed decision-making!

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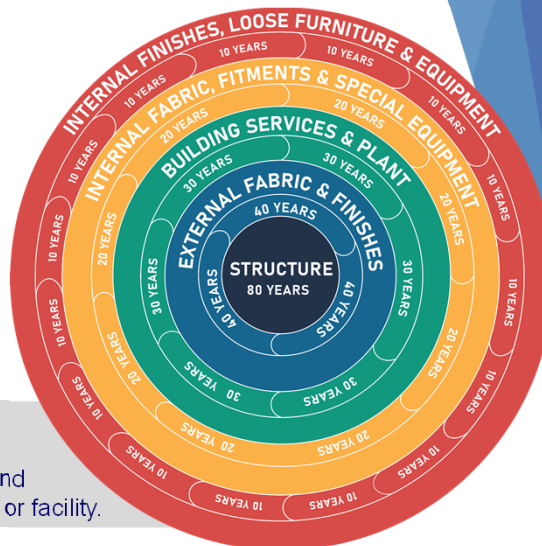
Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



- Service Life:** "Period of time after practical completion that a constructed asset or facility, or its elements and component parts, meet(s) or exceed(s) the performance requirements".

Sources: ISO 15686-11: 2014, ISO 21930: 2017, and now AIQS modified (2022).
 Preferred term by: ATO, AS/NZS 4536, ISO 15686-5: 2017 and ICMS (2019 and 2021).



This life cycle 'onion' is only a graphical representation of the concept of differential **Service Life** expectancy of building elements and the component parts within a constructed asset or facility.

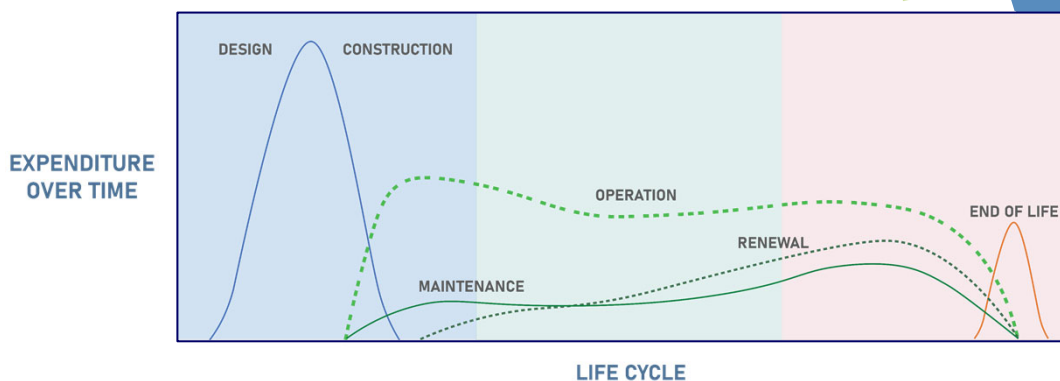
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Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



- Life Cycle:** "The time interval between a product's recognition of need or opportunity and its disposal".



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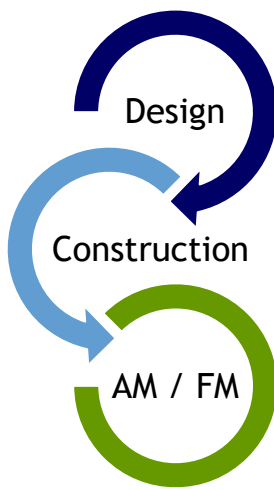
Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



Cost Management Life Cycle

FACILITY LIFE PHASES *	PROJECT STAGES PER ACMM & ICMS COMBINED	BASIS & DOCUMENTS REQUIRED	COST MANAGEMENT ACTIVITIES	LCC INTERFACE & DELIVERABLES
DESIGN	1. Brief	Study Brief, sketches or relevant information.	Brief Stage Cost/Indicative Cost.	Business Case or Feasibility Study inputs based on facility policy and functional objectives.
	2. Outline (scope, location, etc.) and functional areas.	Scope of works (loft, lift, location, etc.) and functional areas.	Outline Proposal Cost/ Preliminary Estimate.	Life Cost Budgets related to project planning, functions and life expectancy targets.
	3. Sketch Design	Dimensioned sketch plans, elevations and specifications.	Sketch Design/outline of Cost Estimate/ Cost Plan	Life Cost Planning with comparative analysis and option selection.
	4. Documentation	Final working drawings and specifications prior to tender.	Tender Cost Plan (Tender Estimate).	Life Cost Plan per design.
Project planning: reflective of current policies, standards, strategic objectives and understanding of risks and target LCC requirements.				
CONSTRUCTION	5. Tender	priced Bill or Schedule of Prices.	Tender Report/Contract administration and analysis.	Life Cost Plan per tender.
	6. Construction	For construction documents.	Final Account/Contract administration and calculation.	Project Monitoring management review and option refinement.
Performance Evaluation: reflective of facility plans, standards, monitoring, benchmarking and meeting target LCC requirements.				
ASSET / FACILITIES MANAGEMENT	7. Renewal	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 to support the service delivery plan.	CAPEX budget to support the service delivery plan.
	8. Operation	Costs of running and managing a Facility, Constructed Asset, including administrative support services, rent, insurance, energy and other environmental/regulatory inspection costs, taxes and charges.	OPEx budget to support the service delivery plan.	OPEx budget to support the service delivery plan.
	9. Maintenance	Costs of corrective, responsive and preventative maintenance on a Facility, Constructed Asset or parts and all associated management, cleaning, repairs, repainting, repairing or replacing of parts.	Maintenance Plan to support the service delivery plan.	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 inspection, decommissioning and decontamination, demolition and reclamation, environmental, asset transfer obligations, remediation, recovery, disposal of components and materials, and transport and regulatory costs.	Business Case or Feasibility Study inputs based on facility policy, performance status and applicable regulatory and statutory requirements.	Business Case or Feasibility Study inputs based on facility policy, performance status and applicable regulatory and statutory requirements.



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

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Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



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Note: ACMM ⁴ and ICMS ³ define "Construction" differently but it provides a useful pivot between these two (2) reference documents.				
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Project planning: reflective of current policies, standards, strategic objectives and understanding of risks and target LCC requirements.

Note: ACMM⁴ and ICMS³ define "Construction" differently but it provides a useful pivot between these two (2) reference documents.

Performance Evaluation: reflective of facility plans, standards, monitoring, benchmarking and meeting target LCC requirements.

★ Facility Life Cycle Phases shown here are nominal, the groupings are not exclusive or confined. By definition design, construction and asset/facilities management should co-exist, overlap & integrate.
 ★ AIQS' Australian Cost Management Manual: Volume 1, 4th edition (2021)
 ★ International Construction Measurement Standards (ICMS), 2nd edition (2019)

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Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



'Service Life' and the prospect of premature **obsolescence**:

- Physical: condition-based.**
- Economic:** *too expensive to maintain.*
- Functional:** *ceases to function as intended.*
- Technological:** *no longer superior to alternatives.*
- Statutory or legal:** *compliance-based.*
- Social:** *cultural, behavioural and fashion changes.*
- Environmental:** *related to trans-generational equity, eg. pursuing a circular economy or achieving carbon neutrality.*



Individually or in combination **Obsolescence** is difficult to predict, but generally equates to **loss of competitiveness**.

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Source: AIQS-LCC (2022)

AIQS' Information Paper Life Cycle Cost Analysis (2022)



UN's 17 Sustainable Development Goals (**SDGs**) are a call for action by all countries to promote prosperity while protecting the planet. <https://sdgs.un.org/goals>


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Source: AIQS-LCC (2022)



How's your bottom line?
 ...embracing Life Cycle Cost analysis

*"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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Thank you, and
QUESTIONS



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