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BUILDING ADVISORY GROUP
PTY LTD

MACDONALD LUCAS

TECH BULLETIN

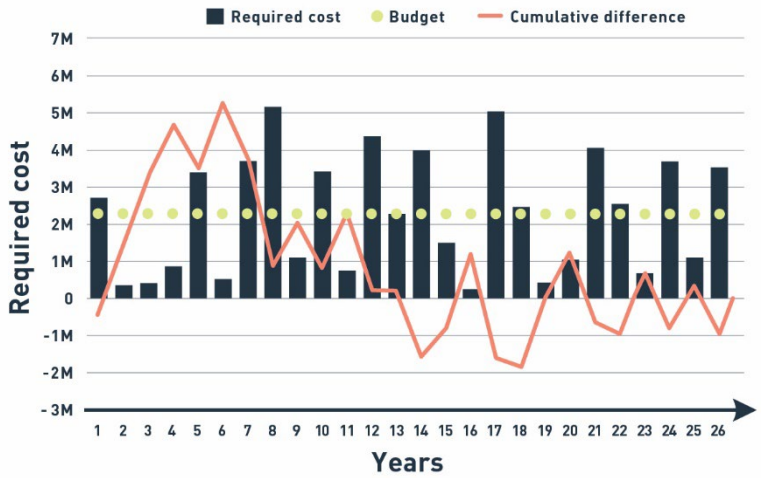
Topic: Innovative Lifecycle Budgeting & Estimating

Allied Partner: MacDonaldLucas

Lifecycle Budgeting

Budgeting for lifecycle works i.e., the replacement of assets at the end of their design life have come a long way in recent years. Historically clients tended to budget the same amount year after year. And allocated it to whoever shouted loudest.

Sometimes clients based this budget on a percentage of the build cost or of the insured value of the property. This approach, however, ignores the episodic nature of life cycle failure and the true cost of asset replacement, as illustrated in the graph below. Where the black stack bars show the required spend, the yellow discs show the available budget, and the orange line shows the cumulative difference between the two.

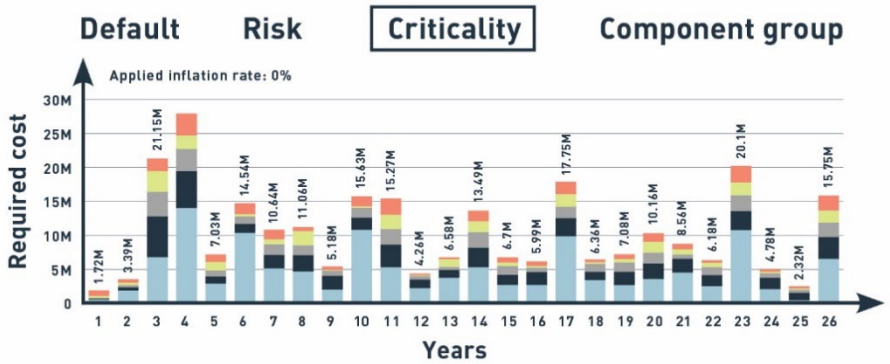


Lifecycle Estimating

The “what did we spend last year?” approach to lifecycle budgeting was gradually replaced by a more nuanced one. One that better reflected the actual profile of asset failure. This change was due in large part to the arrival of the public private partnership (PPP) model, a contract for the procurement of large-scale public-sector facilities such as hospitals, prisons, and roads. This saw an approach introduced where all the various assets that contribute to life cycle expenditure are individually identified and the cost of replacement estimated, and the timing of replacement forecast.

Initially this approach was based on data drawn from D&C documents and visual inspections of assets. More recently a multi- disciplinary approach has been introduced with multiple information sources used along with visual analysis to arrive at a more accurate picture of asset replacement liability.

Furthermore, each individual asset can be classified to meet the clients’ various needs e.g., risk, criticality or by asset type. An output from this approach is illustrated in the chart below. In this case assets are categorised based on their criticality to the host organisation.



RMIT CAMS

The CAMS lifecycle modelling tool takes an even more sophisticated approach. It has been developed by RMIT supported by Macdonald Lucas. CAMS leverages research-based degradation curves. These degradation curves utilise a self- learning algorithm to predict asset failure with increasing accuracy over time.

TREMS Research Hub

The partnership between Macdonald Lucas and RMIT continues to develop in a number of exciting ways. The most recent of which is the TREMS (Transformation of Reclaimed Resources to Engineered Materials and Solutions) research hub.

This is a partnership that comprises 33 industry partners, nine Australian Universities and four international institutions. The Macdonald Lucas element of this project is the tagging of assets in the CAMS life cycle model to identify their recyclable content in support of a circular economy approach to asset replacement.

Future Innovations

In the data powered world that we all now live, the abilitiy to accurately capture and codify asset data will unlock the doors to a number of exciting innovations these include IoT, digital twins, BIM and the shift towards Smart Cities.

Contact

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