

Should cost modelling: using data and benchmarking to 'build back better'



Should cost modelling (SCM) is one of the 14 policies proposed in the Construction Playbook to make procuring and delivering public sector projects more efficient and part of the drive to 'build back better'. There is a lot to think about when producing SCMs, but our specialists Jonathan Stewart, Sara Boonham, Nicola Herring and James Garner have considered their purpose and how they can be effectively developed and implemented.

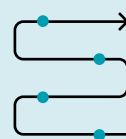
SCM isn't a brand-new idea. Collecting capital and design cost data to inform the cost of future projects is something the industry has been doing for decades.

Benchmarking is the key input to SCMs, using retrospective data from completed projects to provide comparators for key project deliverables such as cost, programme and greenhouse gas (GHG) emissions. By considering a broad range of data, SCMs facilitate more intelligent procurement as well as whole-life cost modelling to enable better decision making.

What is a should cost model, and how is it made?

A SCM is both a financial and analytical model that provides comprehensive calculations of what a service, project or programme 'should' cost over its whole life, including both the build phase and the expected design life, considering the risks associated with delivery. They consist of a variety of components depending upon the final delivery model assessment delivery model assessment (DMA). The DMA is an evidence-based approach to recommending how a contracting authority should structure the project or programme delivery.

There are five distinct stages to follow when preparing a SCM:



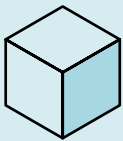
01 Plan

Determine the project complexity, scope, and choose the appropriate delivery model.



02 Design

Create a delivery plan (including timelines, resourcing requirements, and data inputs), specification and design (showing key calculations, inputs, and outputs).



03 Develop

Build and populate the model taking the agreed specification and adding calculations.



04 Test

Test the model following quality assurance procedures and sign-off.



05 Use

Ensure governance and controls are in place. SCMs should remain fit for purpose over the course of the project – they may evolve.

If there is limited complexity, then a simple SCM may be appropriate. For major projects and programmes, a more detailed SCM should be prepared during the planning and preparation stage, aiding decision making. It typically has various scenarios or options to enable comparison and so that sensitivity analysis can be undertaken.

A SCM will evolve over time, becoming more detailed. In the guidance, the Green Book is referenced, which is guidance issued by the government on how to appraise policies, projects, and programmes. SCMs are similar to how the Green Book considers business case development.

The Aqua Book, which is guidance on producing fit-for-purpose analysis on policy development and the delivery of projects, programmes, and operational services, is also referenced. This ensures that its message of providing models, data and assumptions are fit-for-purpose is reflected in the process. The best practice regime of quality assurance throughout the life cycle of analysis ensures that the model is appropriate and considers uncertainty and relevant risks.

The evolution of a SCM is broken down into four stages:

Initial	High-level indicative calculations carried out to inform initial strategy (strategic business case)
Developed	More detailed model allowing evaluation of options to demonstrate value for money (outline business case)
Evaluative	Full cost model including verified and validated data to support evaluation of costs submitted by suppliers (full business case)
Performance	Full cost model using actual cost data allowing comparison to estimates and open book contract management (full business case)

Why is it in the Playbook, and what are the benefits?

SCM allows clients and advisers to assess a project based on comparative benchmarks. Comparative data helps inform discussions about what value looks like and desired outcomes to enable selection of the best delivery model to achieve these requirements.

This data allows clients to know where their project sits within the norms for similar work and to assess different options and scenarios. Better analysis of risk will enable provision of appropriate allowances within cost estimates and programmes. Applying lessons learnt from previous projects can mitigate risks and improve outcomes.

SCM captures whole-life costs adding in things like running and maintenance costs, facilities management and utilities as well as incorporating socioeconomic factors (e.g., social value, community benefits, physical and mental health benefits), ultimately linking together the overall outcome and benefits of a project.

The assessment of whole-life costs will enable decisions based upon longer-term thinking and ensure that the best decision is made. SCMs should be linked to the whole-life carbon assessment, taking strides towards the 2050 net-zero commitment. Adopting this process to understand and minimise GHG emissions footprint of projects and programmes throughout their lifecycle will be imperative, particularly when GHG emissions may indicate that in some instances, a higher capital cost spend will be beneficial in the future. For example, to facilitate flexibility to enable change of the future use of a building or allow easy retrofitting as technology develops.

To reach decarbonisation targets, clients need to know what energy is typically used so changes can be made. Clients can use benchmark modelling to determine how design changes will impact things like future fuel consumption.

Overall, SCMs will promote better project outcomes by identifying and monitoring value. It will also help to manage stakeholder expectations by understanding risk and uncertainty and better cost prediction. They are beneficial to not only owner-occupiers but other occupiers and investors across all sectors.

Key benefits:

- ✓ Allows analysis of options providing objective views on drivers for different combinations
- ✓ Allows deeper understanding of the key factors which influence cost
- ✓ Promotes transparency over cost vs value
- ✓ Facilitates better negotiation by allowing understanding of differences between a bidder's proposed price and the expected baseline
- ✓ Assists contract management as it can be used to inform change and challenge for value for money
- ✓ Highlights potential risks related to costing
- ✓ Better insight to manage expectations

Will should cost modelling only work if there is accountability?

As with all the Playbook's policies, implementation is the key, and the big question hanging over SCM is accountability.

This is where the Playbook already seems to be making waves, with whole-life costing recognised as something which requires ongoing monitoring. As a result, some contracts are being amended to hold contractors accountable for their commitments after the project is completed, and scrutiny over whole-life costs is coming up more in bids.

Some lessons learnt when preparing a SCM should be around who monitors the building's performance against the original costs in the years after delivery and what happens if what is delivered falls short of what was planned and promised?

For example, if the promise is to deliver a building that uses a certain amount of energy, and it doesn't meet those targets, what recourse does the client have?

Some performance data may not paint the whole picture. Taking the energy example, the building could be functioning as intended, but the end-user may open windows, resulting in more energy being used.

And how is obsolescence built into the model? For example, the definition of wellness in buildings may change in time. What scores highly today may not in 20 years.

How contracts are set up will be key for both collecting data and accountability, with the first stage being working out what service is required. During the tender process, the business case needs to be assessed and challenged to determine if the projected costs and performance data is realistic. Monitoring data, such as energy consumption, will need to be priced into the overall costs.

Procurement needs to be an active negotiation rather than taking the figures as read. This approach is already being done on certain projects, some of large scale, and there are exemplars where applying a whole-cost model with accountability in the contract has worked well.

Collecting ongoing performance data – which is a valuable exercise in itself – is key to making SCM fully deliver on its potential.

Experience shows that the deliverability of schemes, to the cost parameters agreed between client and contractor, is a frequent source of tension. SCM will promote an earlier, more accurate assessment of cost, creating better levels of assurance and accountability, where projects may otherwise derail because of cost.

SCM in action

Gleeds produced a SCM for a key Local Authority's (LA) £50 million estate redevelopment programme, detailing a 40-year whole-life financial model for all options, including bespoke sensitivity testing in light of the COVID-19 pandemic. The SCM identified and analysed 20 options over nine locations, including RIBA Stage 0/1 testing of the current estate. A variable accommodation model was developed, considering the needs of thousands of staff.

Modelling a variety of options was an important step in understanding any future implications. Sparked by the pandemic, this SCM ultimately allowed the LA to analyse different strategies for the operation of their estates to ensure they are fit-for-purpose to meet changing expectations as to how people will work post-pandemic and over the life-time of the estate.

Don't get left behind

SCM brings whole-life data into focus to ensure that decisions are made based on best value and projects are right from the start.

It is a record of what is already being done in many cases to satisfy Green Book criteria with greater focus on the quality of the benchmark data and analysis that underpins the whole-life modelling.

We understand the level of investment in producing a SCM will vary with the complexity and significance of the procurement. The SCM process will not be a template or one size fits all as, by necessity, it will be sector and project-specific to achieve its aims. Some sectors are changing so fast assumptions can't be made based solely on what has happened but projecting ahead to potential changes is an area that can often get overlooked. Some could argue SCMs could hinder the process, but realistically the pros outweigh the cons for long-term better delivery.

With expert advice and appropriate levels of accountability, it is clear the industry is starting to take this seriously. Perhaps the Playbook's expectation of following a 'comply or explain' basis is working, and the potential of driving change to 'build back better' is becoming a reality.



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