Poor project cost estimates are more than embarrassing...

But good communication and corporate culture can help avoid cost blow outs

At a glance

Cost estimation - how many projects do you know that have come in on budget?

The New Zealand Herald recently cited SkyCity managing director Nigel Morrison saying cost over-runs and 'design improvements' had seen the bill for the Auckland convention centre blow out from an original budget of $402 million to between $470 million and $530 million.

Further afield, the Berlin airport is an even more dramatic example of a project cost increase – one that cost Berlin's mayor his job, and German tax payers a lot of money. The original cost estimate for this new airport was about €2 billion. Construction started in 2006 and the airport was meant to open in 2012. At the time of writing, the airport still hasn't been completed and the costs to completion are now estimated at €5.4 billion.

While these are only two examples, research supports the suggestion that cost estimates are typically inaccurate (AACE International Transactions, Estimate Accuracy: Dealing with Reality, by John K Hollmann, 2012).

But before we examine the issue further, it's worth briefly reminding ourselves of what a 'project' is. Let's keep it simple and say a project is a one off activity with a defined start and end. This definition alone suggests that since projects are 'one off' activities, no two projects will be the same. As they don't come off an assembly line, project costs can't usually be predicted by looking at the last 1000 or so and coming up with a number that will remotely resemble the final cost.

This article is not about project delivery, scope management, risk management or team selection. It focuses only on a small, albeit important part of a project - the cost estimate.

So why do we keep getting it wrong? It's not a recent phenomenon. It's also not limited to projects in one particular industry or just large projects. In fact, some work into the success factors of delivering projects has suggested that smaller projects suffer even more from poor delivery, including inaccurate budgets, as they usually receive less attention than larger ones.

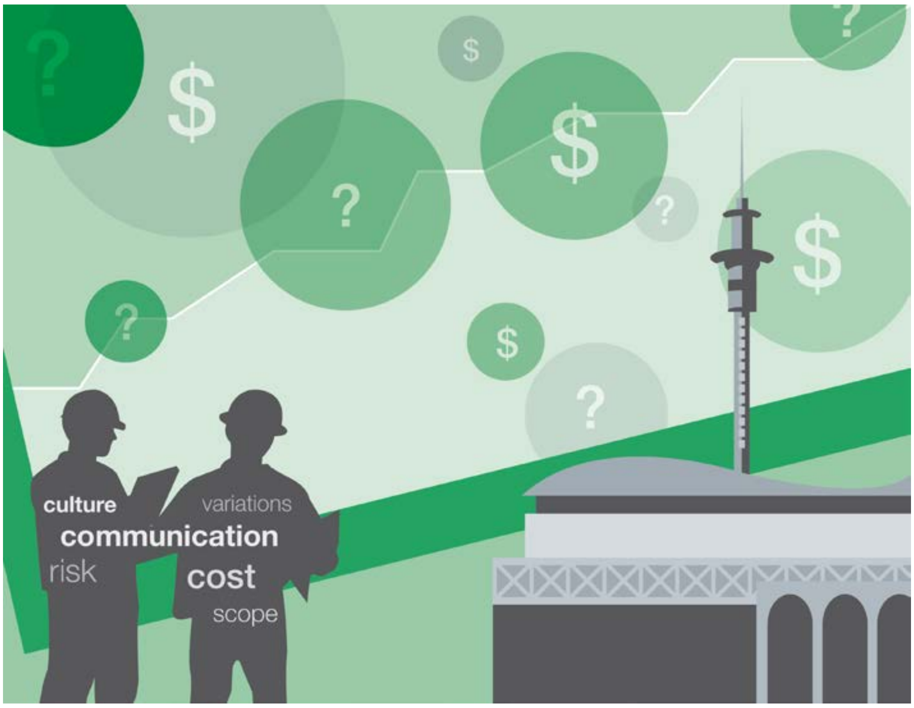
These are high level observations. Some practitioners may argue that each project is different and there are numerous reasons why projects don't come in on budgeted. However, even when scope is tightly controlled, numerous other factors can contribute to project outturn costs being different to the original cost estimate.

Understanding possible cost outcomes

Let's look at the following two statements:

1. Project cost estimates are usually communicated in the form of a single dollar value.

2. History tells us it is unlikely that a project cost estimate will be accurate.



One solution to the problem can essentially be based on the above two statements - rather than communicating a single value, project cost estimates should communicate a likely range of cost outcomes including lower and upper bounds for the project cost (not just adding contingency).

If you're the project client and presented with a cost estimate that states a single number, no matter how much detail has gone into it, history suggests that the final project cost is more than likely to be different, even if it includes a contingency. We recommend you ask for a range of likely cost outcomes instead. While this may seem obvious, it's our experience that very few organisations develop cost estimates which communicate at least three data points:

3. The value at which there is a 50% chance of the project coming in above this cost and a 50% chance of it coming in below this cost (known as the P50 estimate).

4. The value at which there is only a 10% chance of the project coming in at a lower cost (known as the P10 estimate), i.e. the lower bound.

5. The value at which there is a 90% chance of the project coming in at a lower cost (known as the P90 estimate), i.e. the upper bound.

If a project is at an early stage, with little knowledge of the details, it's impossible to develop an accurate cost estimate as there's simply not enough detail known about the project. As a result, you'd expect the lower and upper bound to be far apart. As the project concept is developed towards implementation, more detail is known and the cost estimate can be improved upon. Therefore, the range of cost outcomes will become narrower as the upper and lower bounds will move closer to the midpoint. However, even during the implementation phase, a range of cost outcomes are still possible.

For a moment let's consider this issue from a procurement perspective. Few tenders require bidders to communicate the anticipated cost as a range of likely outcomes. You could argue that this isn't usually in the interest of the client, as tenders requesting a fixed price seek to allocate the cost risk with the contractor. But most projects are tendered before every detail has been defined, and it's not unusual for contractors to take advantage of this and bid low, only to submit multiple variations later, as project details are becoming clearer. So a fixed price bid doesn't eliminate the cost risk after all. In fact, a fixed price is little more than an indication of the minimum cost of the project. And if you look at history you'll likely find that the project cost is often significantly more by the time it's completed.

Of course there's no guarantee that the three values (P10, P50 and P90) are more accurate than a single value. However, if nothing else it raises awareness with both the project team and the project client that costs cannot be predicted accurately. Providing a range of potential outcomes should trigger the right conversations between project stakeholders.

Communication and culture

We're all prone to wishful thinking. And few people like a doomsayer. Recognising these facts is important when considering cost estimates. It's our experience that the majority of project feasibility assessments, including financial affordability, take on a life of their own as the project team develops a sense of ownership with a project. In other words, when people become involved in a project they develop a sense of association, often resulting in a poor representation of the real project viability at the concept phase. It takes courage to fess up and express what is likely to be perceived as a negative or opposing viewpoint, and many organisations don't have an appropriate level of appreciation for this. External peer reviews should help with this issue. However, in our experience the above points still apply, and of course an external peer reviewer doesn't have the same in-depth knowledge of the project as the project team.

We suggest that an organisational or corporate culture where staff feedback is valued, won't only provide operational benefits in terms of productivity, staff retention and other metrics, but will also enable those projects which have a better chance of coming in on budget, on schedule and to quality expectations being sent to management for approval.

We do support an external peer reviewer be engaged. However, to ensure the external peer reviewer relationship with the project team doesn't unduly influence the reviewers' approach or outcome, it's important they be engaged by the executive leadership team or the Board.

There are of course many other issues to consider when delivering projects to a budget. This includes scope management and a thorough project risk analysis. However, when you're presented with a project cost estimate, ask for a range of likely cost outcomes, not just a point estimate. And in terms of improving cost estimate accuracy and project delivery in the long term, seek to develop an organisational culture which values honest opinion.

Coffey helps clients to deliver projects, from concept to completion. We recognise that each project is different, and we tailor our solutions to reflect this. We can help you and your team develop and deliver projects, including the preparation and communication of a robust cost estimate, and ultimately help you deliver a project that you and your organisation can be proud of.

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