Why marvels of engineering require miracles of project management

It's highly likely that you recognise the building in the first picture on this page. The Sydney Opera House is, aft all, one of the most famous structures in the world. Designed by Danish architect Jørn Utzon, it attracts over 8-million visitors a year and provides a massive boost to the Australian economy. Opened 45 years ago in Octobe 1973 by Queen Elizabeth II, its iconic design of enormous precast concrete shells has won numerous prizes and UNESCO World Heritage site status.

By Jens Roehrich and Jas Kalra 18 Oct 2018

Another example of world famous design is Concorde, the turbo jet-powered supersonic passenger airliner that roared ove the Atlantic Ocean from 1976 to 2003. Jointly developed and manufactured under an Anglo-French treaty, only two airline (Air France and British Airways) operated the 14 aircraft which were built to offer speed and luxury.

A trip from London to New York took less than three hours, and cost around £8,000 for a return ticket. In 2006, Concorde won the Great British Design Quest, beating other iconic designs such as the Mini and the London Tube map.

The lesser known element of these two design success stories, however, is that from a project management perspective, tl could both be considered as massive failures.

Flying high John Selway/Shutterstock

The Opera House was finished ten years late, at a cost that came in a huge 1,357% over budget at AUS$102m. The proje also had a huge impact on the career of the architect, who, after disputes with the Australian government over design, schedule and costs, left the country before the building was completed, and never returned.

And while Concorde was an engineering marvel, travelling over twice the speed of sound, it had cost overruns of over 1,100%, coming in at around £1.3bn. This meant far fewer aircraft were produced than originally planned. It also meant French and British taxpayers were left to pick up much of the tab.

More recent projects have faced similar problems. In Edinburgh, the Scottish Parliament Building came in at more than 1,000% over budget, with an estimated final cost of over £400m. The Millennium Bridge in London faced serious safety concerns due to the swaying motion of the structure, which needed to be fixed. Further along the River Thames, the Millennium Dome exceeded predicted maintenance costs and attracted fewer visitors than had been expected.

So why do so many projects end up painfully over budget, frustratingly late or not meeting expectations?

Great expectations

Part of the answer lies in the enormous expectations placed upon the [shoulders of the project manager]. In the case of th Sydney Opera House, some have argued that in fact nobody really took on that vital role. Utzon was focused almost entire on design, while the government committee had no technical expertise.

Yet large scale projects come with great uncertainty and myriad stakeholders who must to be managed. Often a number o public and private organisations have to work closely together in order to deliver.

The role of a project manager is crucial – and often underestimated – in these situations. Project managers are (and shou be) sometimes compared to superheroes due to the vast range of socio-cultural and technical powers they possess.

They need to be able to lead and motivate teams of different professions (such as engineers and managers). They need t be keen problem solvers. They need to have supreme negotiation skills to deal with a wide variety of interest groups and th often conflicting demands and expectations. They need to be adept at manoeuvring through the politics of such projects w a clear understanding of what the customer wants.

On top of all of this, project managers need technical understanding to manage schedules, organise and coordinate the

various work packages, allocate resources and control budgets. Managing massive projects is a truly Herculean task.

Even the most diligent of project managers cannot account for all uncertainties. And the spotlight of media publicity means issues that do arise are often amplified, affecting public and government perception – and potentially restricting future investment.

Long term thinking

For example, a recent report revealed that delays in the UK's Crossrail project are overshadowing its other notable successes – such as the lack of legal disputes and minimal supply chain disruption, which are not common in projects of scale. This could potentially harm future investment in transportation – unless a project manager promises to deliver on be timescales. These promises in turn can lead to overly optimistic timescales, with any future delays overly scrutinised.

This vicious circle of over-promising and the inevitable under-delivery would lead to such projects being perceived negativ Project managers, therefore, often need to maintain a stoic stance in face of short-term "failure" – and not give in to the lu of suggesting optimistic timescales.

Similarly, stakeholders need to appreciate that short-term setbacks are not indicative of the actual value delivered by these large scale projects.

While massive cost overruns and project delays need to be avoided, we should not forget that these kind of project management challenges do not necessarily add up to failure. A number of projects, including the Sydney Opera House, h become iconic symbols for their cities and countries and over time, attracted revenues far exceeding expectations (and costs).

They remind us that beauty does not come easy. Large scale projects can create economic and social value, even though the process of accomplishing them is not always pleasant. Human endeavours that are painful in the short term can lead t long term and sustained benefits for all.

ABOUT THE AUTHOR

Jens Roehrich, professor of supply chain innovation, University of Bath. Jas Kalra, research fellow in supply chain management, University of Bath.