

COMPARING AND CONTRASTING UNIQUE MAJOR PROJECTS WITH THOSE THAT ARE REPLICABLE



Highlights from the Major Projects Association event
held on 23rd January 2020

By their very nature all projects are unique, but are some more unique than others? Across the Major Projects Association membership major projects vary widely, from IT projects through containment buildings for highly experimental nuclear facilities to rail systems. Most are complicated; many are highly complex.

At this Major Projects Association evening meeting speakers drew on their project experience to discuss what makes infrastructure projects complex and unique, whether there were any common features that could be learnt from them, and if some were so unique that the 'rules' of major project management do not apply.

A number of key themes emerged as the discussion evolved, including:

- Unique projects exist and can have repeatable elements.
- The need to understand the difference between complicated and complex major projects.
- The changing rules of major project delivery in a changing environment.

UNIQUE PROJECTS EXIST AND CAN HAVE REPEATABLE ELEMENTS

With the UK Government committed to investing in the nation's infrastructure, the number of unique, complex major projects is set to grow. It is therefore vital that these projects are repeatable, and that lessons are learnt and applied to ensure they are delivered to plan.

While we talk about the existence of unique major projects, in reality, they are simply complex projects which have never been done before. And unless they are prototypes, they are likely to be done again – at least in part – and so should have areas to learn from.

Uniqueness is therefore about being different, be that through the project's technical or social complexity, degree of collaboration, economic ambition or technological pioneering.

The Moon landing 50 years ago was certainly a unique project but still had many processes that could be repeated, learned from and improved. Yet, too often the perception of uniqueness overpowers repeatability.

That said, success can sometimes be the result of getting lucky and we need to be able to admit that. The mistake is to wrongly identify these 'lucky' successes in projects or delivery elements as repeatable on the next project.

'Even unique projects such as the Moon landing have elements that can be repeated – the key is identifying what elements are replicable and which are truly unique.'

Andy Murray, Partner, Head of Projects and Programmes, RSM UK

THE DIFFERENCE BETWEEN COMPLICATED AND COMPLEX

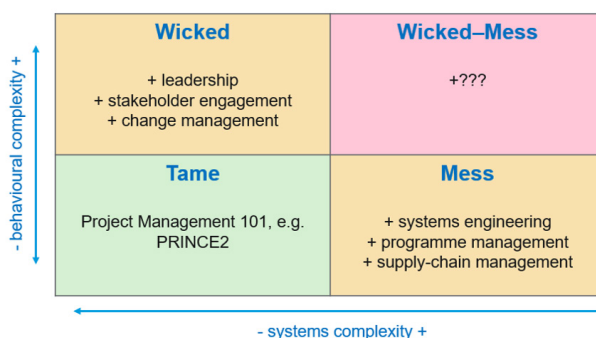
While major projects are all complicated, not all are complex. Complicated projects can be solved technically by applying science. Complex projects are characterised by change, having no single solution, and where small differences at the start can make a huge difference at the end.

For example, following IKEA instructions is a complicated but repeatable challenge. If it was a complex challenge, a small difference at the start would lead to a completely different outcome – clearly not the case with building furniture.

Knowing the difference between complex and complicated projects is something of an art, not a science. Our inability to distinguish between what is complicated and what is a complex project – and thus quite often a truly unique project – is a major reason for failure.

To understand the difference, we can use the Tame, Mess, Wicked and Wicked Mess definitions and modelling:

- **Tame** – projects are simple and clearly defined.
- **Mess** – projects are tame but with added interdependencies.
- **Wicked** – projects are hard to define, change with time and involve multiple stakeholders and solutions.
- **Wicked Mess** – projects are wicked but have added interrelated and interdependent issues.



(Andy Murray, Partner, Head of Projects and Programmes, RSM UK)

When we really understand project complexity, we stand more chance of avoiding simply extrapolating the Tame solution to try to solve a completely different Wicked Mess problem.

‘Wicked problems have no optimal solution as they require social, political, moral and behavioural judgements. But we can come to a satisfactory solution after discussion and agreement with stakeholders.’

Dr David Hancock, Construction Director, Infrastructure and Projects Authority

THE CHANGING RULES OF MAJOR PROJECT DELIVERY IN A CHANGING ENVIRONMENT

Major projects span the fields of society from infrastructure and the built environment, IT and communications technology to emerging areas such as economic development and genomics.

These might include:

- Power plants such as Hinkley Point
- Transport projects such as HS2
- Economic developments such as China’s New Silk Road
- Genomic projects such as the Tree of Life and Earth by Genome projects

The sheer complexity of these new projects means they can genuinely be described as unique. And while this uniqueness is not an excuse for a lack of project delivery discipline, it will inevitably mean professionals will have to change.

That means being prepared to ‘slaughter some sacred cows’ of traditional project delivery to ensure success in a rapidly changing and increasingly unpredictable environment. For example:

- The rapidly changing data-driven environment makes the end goal of today’s complex projects a little less clear. The necessity to define *rigidly* what you want to achieve at the start of a project is becoming less relevant.

- Stakeholder management is important, however some major projects and programmes are so long in duration that suppliers, markets, future stakeholders and business models may not yet exist.
- The speed of modern technological or social development can quickly turn critical parts of a logical programme upside down on unique complex projects. Programme planning is therefore likely to be an increasingly difficult area to manage.

Navigating this new environment will require visionary leaders with the skills to cope with this rising complexity. The reality is that we will more often have to start projects without a clear idea of the end result. This new environment means having to work out which rules need to be maintained and which rules need to be broken, while also developing new ways to sell these ideas to politicians and the public they serve.

‘Complex major projects have two key things in common. First is the sheer volume of component parts, their relationships and interdependencies. Second is that they are all impacted by external issues such as the capacity of the market to deliver, commercial themes such as risk sharing and politically driven decisions.’

Alison Atkinson, Director Infrastructure Projects Delivery, AWE

‘A Moon-shot vision; but where is the moon?’

Harriet Oppenheimer, Partner, PA Consulting

POINTS FOR FURTHER DISCUSSION

- Are we training our future professionals with the resilience needed to deliver long-term projects?
- Do we spend enough time understanding outcomes – who projects are for, who is paying and who is going to use them?
- How will we teach the next generation to manage increasingly complex major projects?

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Chair: Alison Atkinson, Director Infrastructure Projects Delivery, AWE

Contributors:

Dr David Hancock, Construction Director, Infrastructure and Projects Authority
Andy Murray, Partner, Head of Projects and Programmes, RSM UK
Harriet Oppenheimer, Partner, PA Consulting

Participating Organisations:

AECOM	Bentley Systems
AWE	Cavendish Nuclear
Anglian Water	Diamond Light Source Ltd
Arcadis LLP	HS2
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John Southgate, Head of Alliance Development and Programme Office, UK Power Networks
Nick Sumption, Strategic & Operational Director, Knowledge Transfer Network
Kim van Rooyen, Director of Technology, Turner & Townsend

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Saïd Business School	WYG
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For further information contact the Major Projects Association at:
mpa@majorprojects.org 01865 818030 www.majorprojects.org