A WHOLE SYSTEM APPROACH TO MAJOR PROJECTS – END GAME THINKING

Highlights from the Major Projects Association event held on 13th February 2020

Major projects are normally interventions in existing systems – systems which are already providing vital services to users. Sometimes the greatest user benefits arise at a system of system level. A classic example is economic infrastructure, where power, transport, water, communications and waste networks all interact to support civilised life.

Professionals immersed in the process and discipline of a project can too easily lose sight of these truths. Even the language of benefits realisation may be part of the problem, narrowing attention down to a tick-box list of deliverables when what matters to people is an outcome. Losing sight of the end game can also lead to a poor transition into operations.

> *'Being a projects professional is about legacy not just delivery.'*
>
> Richard Davies, Project Director – Man TP – Manchester Airport, Arcadis LLP

This Major Projects Association seminar examined the challenge of embracing a whole systems approach through all stages of the life cycle, from conceptualising the challenge, through project initiation, delivery, commissioning and into operations.

Several interconnected themes emerged:

- The importance of seeing projects in the systems context.
- Creating an organisation and culture that can exploit the benefits of a systems approach.
- Identifying and staying focused on the needs of end users.
- Building the operator's voice into the project from day one.

SEEING PROJECTS IN THE SYSTEMS CONTEXT

> *'The "whole system" means understanding context and coherence across the breadth and depth of the enterprise – not just within the project, not just the technical solution, and including transition planning.'*
>
> Dan Meadows, Head of Enterprise Architecture and Requirements, NATS

Mark Enzer of Mott MacDonald started the seminar by noting that new-build projects add less than 0.5% a year to the UK's existing infrastructure networks. Maintaining and improving the performance of the existing system is therefore much more important for users. Taking this perspective makes it easier to see a project in its proper context – as just one intervention amongst many that ensures that users secure the outcomes they need.

Once this step has been taken it becomes much easier to identify the solutions that deliver the best outcomes per whole life pound. Anglian Water for example had embraced a Totex (total expenditure) approach to its last five-year Asset Management Plan. This collapsed the distinction between capital and operational expenditure and opened the door to a series of innovative no-build and low-build solutions alongside its traditional capital programme.

More broadly, a systems approach can bring greater coherence to an organisation's activities, helping ensure the organisational silos supporting projects, portfolios and operations all contribute to the same user-focused goals.

CREATING A 'SYSTEMS APPROACH' ORGANISATION

Unfortunately, many project management processes get in the way of a systems approach. Typically, we measure time, cost and quality, but not outcomes. This means that saving a few weeks in the design phase can be seen as a positive, despite the negative impact on outcomes. The focus in recent years on benefits realisation is a step forward, but it must not degenerate into an over-complex dashboard that does not link back well to an overall vision or outcome. We also need to get better at linking system outcomes to detailed project-level benefits.

Enterprise architecture was presented as one way of developing better strategic alignment between projects, portfolios and operations, ensuring that this was supported by training, organisation and support functions.

Connected leadership across all of the project partners that stays together across the lengthy life of a project was also seen as crucial. A move to an alliancing model requires immense leadership, a willingness to reduce reliance on narrow contractual requirements and the ability of partners to manage resources collectively.

Even more important however is **establishing the right culture**. This is notoriously difficult to define, and measure. A systems perspective can help focus teams on outcomes, but leaders need to create open environments in which people can challenge the status quo to ensure they are being delivered. An interesting suggestion was that an emphasis on Innovation can be counterproductive as it can feel threatening or someone else's problem. Anglian Water's solution was to focus more on supporting staff to be Innovators.

> *'You can't measure the organisational acceptance of "let's try something" that turns a £60m capital project into a £30m engineering solution.'*
>
> Rob Kelly, Capital Programmes Manager, Anglian Water

THE NEEDS OF END USERS

Major projects do not have the same relationship with customers as Tesco does. The transaction with the end users is ambiguous. What the user wants and expects is often not clearly vocalised and may only become clear later – the expectations of safety in relation to smart motorways, for example.

> *'In the world of major projects, our customer is rarely the same as the end user. This can create a disconnect between those we are working for and those who ultimately benefit from what we are doing. This happens before we even start looking at the technical challenges.'*
>
> Annabel John, Director of Communications and Engagement, Copper Consultancy

Consultation can be driven by process; it may focus mainly on those negatively impacted by a project or it may give an outsize voice to special interest groups. Reaching the much larger audience of potential beneficiaries of the project outcome is difficult, but can unlock the support a project needs to move forward.

Project teams should use data to improve their ability to identify these end users, but they must also take time to develop a genuine relationship and engage with them on an emotional level. The technical and technocratic language of engineering and project management is a big problem here. We should instead articulate clearly what people are buying and explain in simple terms how it will improve their lives.

THE OPERATOR'S VOICE

A focus on the performance of the system is a good starting point for increasing the value of what is delivered to operators and smoothing the transition to service. Delegates agreed that this requires commitment from project teams and operators to engage at the requirements and design stage – and then regularly check back through the project. Leaders must not allow a 'we'll sort it out later' attitude to take hold. Stand-alone operations stage gates are worth considering.

> *'It's incredible how far along a programme you can get without truly understanding what the steady-state operation will look like. It's never a bad time to check this.'*
>
> Dan Evanson, Associate Director, Arup

Significant effort is needed to clarify operator requirements. A case study of Arcadis' work on Digital Innovation at Manchester Airport showed the scale of front-end activity needed to generate digital information that supports project delivery and is usable by operators. At a more basic level, language and process can again be a problem. Thick shelf-ware manuals are less valuable than simple repeatable processes for basic maintenance jobs.

Delegates also discussed the value of a structured approach to the myriad of issues that need to be dealt with to build confidence that a new facility or system is ready to go into operation. Arup showcased their ORAT (Operational Readiness Activation and Transition) process.

POINTS FOR FURTHER DISCUSSION

- How can we strengthen the link between system-level outcomes and project-level benefits?
- Do we have enough leaders who can operate at the enterprise level, and be focused on how projects, programmes and operations align to deliver outcomes?
- Should systems-thinking be better incorporated into the project professional's training?

---

more > Major Projects Association seminars

Chair: Graham Dalton, Chief Executive, DIO, Ministry of Defence
Contributors:
Ross Agnew, Director, KPMG LLP
Dr Julie Bregulla, Group Director – Fire and Building Technology, BRE
Richard Davies, Project Director – Man TP – Manchester Airport, Arcadis LLP
Mark Enzer, Chief Technical Officer, Mott MacDonald
Dan Evanson, Associate Director, Arup

Participating Organisations:

AWE	Deloitte LLP	Mott MacDonald
Accenture	EY	NATS
Anglian Water	East West Rail	National Grid
Arcadis LLP	HS2	Network Rail Ltd
Arup	Highways England	Nuclear Decommissioning Authority
BP Exploration Operating Company Ltd	Infrastructure and Projects Authority	Sunbeam Consulting
BRE	JCP Consultancy Ltd	The Nichols Group
Berkshire Consultancy Ltd	Jacobs Group	Tideway
Cabinet Office	KPMG LLP	Transport for Greater Manchester
Cavendish Nuclear	Major Projects Association	Turner & Townsend
Copper Consultancy	Manchester Business School	University of Edinburgh
Costain Ltd	Ministry of Defence	WYG

more > Major Projects Association reports

Annabel John, Director of Communications and Engagement, Copper Consultancy
Rob Kelly, Capital Programme Manager, Anglian Water
Dan Meadows, Head of Enterprise Architecture and Requirements, NATS
Simon Vaughan, Managing Director, JCP Consultancy Ltd
Dr Andrew Wright, Secretary, APM Systems Thinking SIG