Polycentricity: The (Best?) Way Forward for Megaprojects

Megaprojects are exactly what their name suggests – large-scale, project-based organizations set up to develop capital-intensive infrastructure such as airports, railways, Olympic parks, and energy plants. And with these enterprises comes huge expectation the infrastructure asset will be delivered on time and within budget; expectation riding on the back of equally massive risk. If megaprojects are successful – and defining success is in itself contentious – then all involved take a bow, cut the ribbon and the infrastructure begins its long operating life as an anticipated contributor to society's general wellbeing. But 'failure' – whether perceived or real – is all too common in this arena; so minimising this risk of failure must be a key part of any organisational planning from the get-go.

Organisational planning for megaprojects is challenging, given the huge size and scope of these enterprises, and the large number of stakeholders directly and indirectly involved. But the expectation that planning will 'get it right' is massive. Exacerbating this challenge is the fact that the often unpredictable political and social terrain that these megaprojects inhabit exerts massive pressure on the promoters to underestimate the global performance targets. And once planning is underway, the search for multiple consensuses with key stakeholders can easily lead to overruns of the initial time and cost projections. So, how can any megaproject's promoter best overcome this challenge? Especially as the 'failure is not an option' mantra is a very real and persistent burden.

This is the challenge tackled by Nuno Gil, Professor of New Infrastructure Development at the Alliance Manchester Business School (UK), and Jeffrey Pinto, Andrew Morrow and Elizabeth Lee Black Chair in the Management of Technology at Penn State University (USA) in their 2018 article in Research Policy, *Polycentric Organizing and Performance. A Contingency Model and Evidence from Megaproject Planning in the UK*. [1]The two authors argue that one way to tackle this challenge is by using polycentric organisational planning. Polycentricity is a structure designed by the promoters that lets them remain in charge of higher-order planning decisions, eg budget, timescale and systems architecture. And, simultaneously, it enables the promoters to share decision rights over local planning decisions with the key stakeholders directly impacted by those decisions. In other words, higher-order decisions remain controlled by a traditional hierarchy, but key local decisions are made by consensus. By bringing key stakeholders into the megaproject organization, the promoters aim to create an environment that encourages mutual trust and norms of collaboration. So why do megaprojects so often fail in the public eye even if promoters insist they were successful?

Why do megaprojects 'fail while succeeding'?

The failure of many megaprojects to meet their initial performance targets, as suggested by empirical research, has long engaged management studies. Solving this conundrum is important because megaprojects are instruments for broad value creation available to multiple societal actors. And yet, persistent slippages in performance targets fuel the perception of 'failure' in the eyes of third parties. This happens because institutionalised norms and public perception has it, so the argument goes, that any megaproject that struggles to meet the predicted targets is 'failing'. Why megaprojects struggle in this endeavour is well understood – there are just too many factors out of

[1] Gil, N., Pinto, J. 2018. Polycentric organizing and performance: A contingency model and evidence from megaproject planning in the UK. Research Policy, 47 (4) 717-34

the promoter's control, such as multiple stakeholders, all with their own individual agendas within the greater plan, and external factors and events, eg political bargaining. As a result, this creates a perception that megaprojects are, in a sense, doomed from the outset by their very nature.

Of course, success or failure are relative terms anchored to predicted performance targets and desired outcomes. For instance, was the 2012 London Olympics project a success even though it eventually cost several billions more than was forecasted by the time the bid was submitted? Well, its promoters certainly lauded its success, but critical media scrutiny suggested otherwise. And there are plenty of other recent projects that have 'failed while succeeding'; it depends on whose definition of success is applied, who is making the assessment and what people choose to 'see'.

So, if we're to solve this puzzle, Gil and Pinto argue, we need to take a closer look at the organizational design by which these megaprojects arrive at their sometimes-contradictory status as successes while failing to meet their initial targets. In other words, put their organisational planning under the microscope and take a closer look at the architecture that underpins them.

Polycentric organising and performance

To move the debate forward, Gil and Pinto conducted an in-depth empirical study into the organisation design models of four recent megaprojects in the UK:

- **London Crossrail** – a high capacity commuter railway, promoted jointly by the UK government and the Greater London Authority.
- **London 2012 Olympic Park** – now re-named Queen Elizabeth Park, promoted by the UK government in coalition with the Greater London Authority, the British Olympic Association, and the International Olympic Committee
- **London Heathrow Airport Terminal 2** – an airport terminal, promoted by the private owner of Heathrow Airport, BAA, now known as Heathrow Ltd, but for simplicity's sake the authors use BAA
- **HS2** – the UK's first new national railway since the Victorian age, promoted by the UK government

Gil and Pinto argue that if we're to understand and, therefore, define megaproject performance, ie is it a success or not, then we must first understand the organisational architecture employed by the promoters to plan these capital-intensive enterprises. Central to their argument is the idea that we need to drop the mistaken assumption that megaprojects are 'authority hierarchies', ie the idea that the promoter has complete authority to resolve all of the issues and challenges that the project organization will face from initial planning to completion. Yes, promoters can set initial performance targets. But to reach those desired objectives, they'll need to collaborate with multiple actors in a consensus-oriented setting, which requires extensive communications and interest-based negotiations. And that necessarily diffuses authority between the promoter and key stakeholders.

Three questions, four megaprojects

The authors' study was centred around three core questions:

- How are the planning stages of megaprojects organised from an architectural point of view?
- How does organisational design affect performance?
- To what degree does the project context affect organisational design choices and performance?

To advance theory, and produce robust and generalisable insights, the authors were keen to explore the organizational complexity of their samples' social settings and their interdependency with the environment, two established factors that directly impact organisational design choices.

The four cases differed in the architecture of the physical asset to be delivered. An Olympic park intuitively suggests a decomposable system of sport venues, while the Crossrail and HS2 railways are less so, since all their stations connect to the same track, running the same trains. And Heathrow Airport T2 is something of a hybrid: some components are physically linked, such as the concourses and connecting tunnels, while others, car park, hotel, etc, are not.

The variables in financing these megaprojects are also key; the Olympic Park and HS2 were financed by the UK government alone; Crossrail by the UK government in coalition with the London local government and a group of private actors; and T2 privately. So, contingency funds, or the latitude of available 'slack', differed greatly, which would prove to be a significant factor in their findings.

Methodology

The authors used planning disputes as their unit of analysis, and specifically, how these disputes were resolved within the context of their sample projects' organisational structures. Data was collected through semi-structured interviews, all with shared protocols across the four cases.

Securing exceptional access to the senior managers of the Olympic Delivery Authority helped them to go on and gain access to similar levels of top management in the other three cases. Adopting a snowball approach, they first interviewed the top managers and, once they filtered their responses, moved onto other colleagues who were identified as having intimate knowledge of the dispute. A total of 123 interviews were carried out, each lasting up to two hours, with follow-up interviews to probe deeper into some planning disputes. These verbal responses were then triangulated against archived documents, and from there the authors began producing detailed accounts for each case.

To analyse their data, they innovatively combined Design Structure Matrices (DSMs) with qualitative coding. The DSM is a modelling tool, primarily used in design research, but also suitable for investigating the architecture of complex systems. It allows researchers to represent these complex systems in a square matrix that captures the interdependencies between differing constituent elements. DSMs are rarely used, though, to model the structure of a planning problem, so the authors had to tailor a bespoke DSM that was particular to their research aims and collected data.

Polycentricity with conditions...the (best?) way forward

The findings confirmed (not surprisingly, in the pluralistic UK context with a robust regime of property rights) that polycentric organisational architecture was common to all four cases. And critically, the analysis allowed further refining of our understanding as to how promoters can best utilise this planning model, especially with regard to performance implications. Specifically two key contingencies – external umpires and contingency funds - were revealed by the analysis to significantly affect the planning process and, thus, the project outcome itself:

1 An external umpire – The variation in whether the institutional context surrounding the project organization imposes an 'umpire' with legal rights to arbitrate and settle disputes between the promoter and key stakeholders made for a significant contingency across the four cases.

2 Contingency funds – The variation on the amount of slack, or contingency funds, available to the promoters to call upon to reconcile planning disputes or contradictory interests without having to relax the initial performance targets was the second key contingency.

The study of the impact of the two contingencies led the authors to propose four fundamentally different classes of management problems within polycentric organisational planning. And from those four to extrapolate an ideal model for architectural planning. The four classes are described as:

- **Robust** – Conflates limited slack with the absence of umpires, as evidenced in the T2 case.
- **Challenging** – Substantial slack and no umpire, as was the case for the Olympic Parks project.
- **Fragile** – Substantial slack and an umpire, as seen in both the railway projects, HS2 and Crossrail.
- **Dangerous** – Limited slack and an umpire. Although none of their samples fell into this category, recent UK megaprojects are widely considered in the public eye as project management 'failures' due to the massive slippages in targets. Recent policy changes in the UK that allow for substantial slack have tried to prevent repeat performances of this type of polycentric planning.

Reflections on the megaproject performance puzzle

Gil and Pintos study illustrates how polycentricity contributes to the success, or 'failure', of large, multi-layered, multi-disciplinarian projects in pluralistic settings. The authors do not claim that the polycentric way is the only way; but they argue that, contrary to perception and institutional normative measurements, planning organizational architectures are often polycentric. And recognizing this is critical to understand megaproject performance. Although limitations exist within their findings, eg the study was grounded in the UK which encourages polycentric organising, the study offers some important implications for policy.

The regular occurrence of scope creep and overruns has persistently dogged the reputation of megaprojects and their promoters, potentially harming future projects and their promoters' credibility. Recognising that planning choices can, and do, occur within a polycentric organisational design enables a different direction for policy. Shared decision rights should go with shared accountability for outcomes. So, resourceful stakeholders who claim, and indeed agree to share, decision rights should also accept private arbitration to resolve disputes. This would reduce the need to resort to umpires – a major source of uncertainty and late slippages in performance targets. In addition, if we recognise local planning solutions are made by consensus, it is only fair that key stakeholders are made accountable for the costs of searching for consensus as much as the promoter is. Shifting policy in this direction would help reduce the current reliance on massive slack –contingency funds so-called optimism bias handy to mask slippages from the public eyes, but which engender a real risk of inefficiency, and worse still, opportunistic misdirection of resources.

These policy recommendations are just two encouraging possibilities to help improve megaproject performance within a recognised and acknowledged polycentric planning organisation. This insight addresses the central problem of perception of these much maligned, but essential instruments of value creation available to society at large. And though Gil and Pinto's findings do not reduce the complexity of these large, capital-intensive organisations, they do expose the underlying structure of their problems, which is a significant step forward in the megaproject performance debate.