

# Rethinking capabilities: lessons for policy, scholarship and practice



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Project X is a collaboration of academics, civil servants, industry and professional body representatives, supported by the Economic and Social Research Council (ESRC) and the Infrastructure and Projects Authority (IPA). The initiative seeks to generate unique insights into the performance of major projects and programmes within and outside of government through rigorous 'co-produced' research. The long-term ambition is to build an interdisciplinary community of next-generation scholarship with a more sophisticated understanding of the nature of major projects and programmes. This is underpinned by the aspiration to generate 'usable' outputs that contribute to an evidence base that will enable better project and programme delivery.

For more information on Project X please visit [www.bettergovprojects.com](http://www.bettergovprojects.com)

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## 1. Executive summary

Traditionally, major projects perform poorly, with the majority experiencing cost overruns, delays and shortfalls in intended benefits. However, in recent years, the UK has also witnessed several high-performing projects, such as Heathrow Terminal 5 and the 2012 London Olympics. Why do some projects perform poorly, while others perform well?

Motivated by this question, Project X\* set out to examine how capabilities are developed to improve project performance. A suite of cases was developed investigating leadership capabilities, front-end strategic capabilities, supply chain engagement and the dynamics of collaborative delivery. These cases also consider knowledge transfer and learning, the challenge of sustaining gender equality and control capabilities to mitigate failure and learn from emergent risks.

Three central findings emerged from this investigation:

- In complex projects, plurality, temporality and shifting ground affect project performance.
- Rather than simplifying capability development into a standardised set of competencies, multiple lenses, reflexive learning techniques and engaged scholarship can help to navigate these three facets of project complexity.
- Diverse thought and reflexive practice<sup>†</sup> require an operational culture and core strategic values that embrace reflexive thinking, collective problem-solving and experimentation.

This leads to a different model for capability development where resources, knowledge structures and routines are organised around a core set of values that meet the strategic expectations of a project. This value-driven capability model has significant implications for professional practitioners in government and industry. First, there is a need to develop reflexive learning skills that move beyond individualised learning from the past to a more proactive form of learning where experience is used to challenge and question assumptions. Second, structures and routines are required that make space for inquisitive inquiry and collective deliberation. This requires an organisational culture that recognises the benefits of joint problem-solving, strategic envisionment and experimentation.

The final section of the report illustrates how a reflexive mindset can broaden the current policy narrative of 'better, faster and greener'. For the concept of *better* this reveals the importance of considering the tensions and shifting perceptions of 'what is' *better* to avoid missing opportunities for iterative learning. For the concept of *faster* it avoids the constraints of urgency crowding out sustainable thinking and for *greener* it avoids blind spots and oversimplification of the decarbonisation challenge.

These arguments have important implications for advancing theory, practice and policymaking through projects. For practitioners, the challenge is to become aware of taken-for-granted blind spots and simplified frameworks and toolboxes. This suggests a need for the project profession to move beyond a preoccupation with the development of individuals based on standardised competency frameworks that may stifle innovative thinking. Engaged scholars can play an important role here, by acting as a bridge between pragmatic solutions and the latest grand challenge thinking that underpins important debates.

\* Project X is an ESRC-funded research collaboration between government, academia and industry representatives, aiming to generate unique insights into the performance of major projects and programmes in government.

† Reflexive practice involves questioning assumptions and habitual action to better understand the parameters of decision-making in a complex setting.

“Our research points to a different model for capability development where resources, knowledge structures and routines are organised around a core set of values that meet the strategic expectations of a project”

## 2. Introduction

Projects are the key organisational structures used to deliver transformational change and the infrastructure systems that underpin the UK economy and public services. They account for 20 per cent of global economic activity, exceeding 30 per cent in some emerging economies [1]. Most government policies are delivered through projects, including the response to COVID-19, Brexit and the transition to net zero.

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"We set out to investigate a centrally important question: why do some projects perform poorly, while others perform well?"

The National Infrastructure Strategy sets out aspirations for improved project delivery performance and the integration of social, economic and environmental benefits into the way projects are planned and delivered. However, most major projects experience cost overruns, and nearly half of them are delayed and do not fully deliver their intended benefits [2]. Nevertheless, in recent years the UK has had high-performing projects, such as Heathrow Terminal 5 and the London 2012 Olympics. This motivates a centrally important question: why do some projects perform poorly, while others perform well?

Project X set out to answer this question through a suite of case studies focused on examining the key capabilities that underpin project success. These studies adopted a common set of assumptions, informed by project studies, innovation management, accounting and organisation studies literature:

- Capabilities are developed at the strategic level of the organisation and at the operational level of the project. They are a combination of resources, knowledge structures and routine processes organised to enhance the performance of projects [3]. This view recognises that individual competencies contribute to the development of capabilities. However, the emphasis is on the learning that takes place *in and through* the structure of a project.
- Rather than taking a traditional view that project delivery is a process of optimising the production of pre-defined outputs, this research examines *how* capabilities respond to complexity and therefore *how* they are developed in complex settings.

This report synthesises the main findings from this stream of research.

## 3. Key findings

### 3.1 A multi-level understanding of capabilities through multiple lenses

A systematic review of over 6,000 academic articles on the performance of major projects conducted by our researchers shows that no single concept or framework can account for the multiple and varied causes and cures for poor performance [4].

Traditionally, the capabilities literature describes the combined importance of strategic capabilities, project structures and everyday activities in delivering successful projects. Although this literature describes the importance of taking into account multiple levels [5], further investigation is necessary to explain 'how' capabilities are built, distributed and coordinated in complex projects.

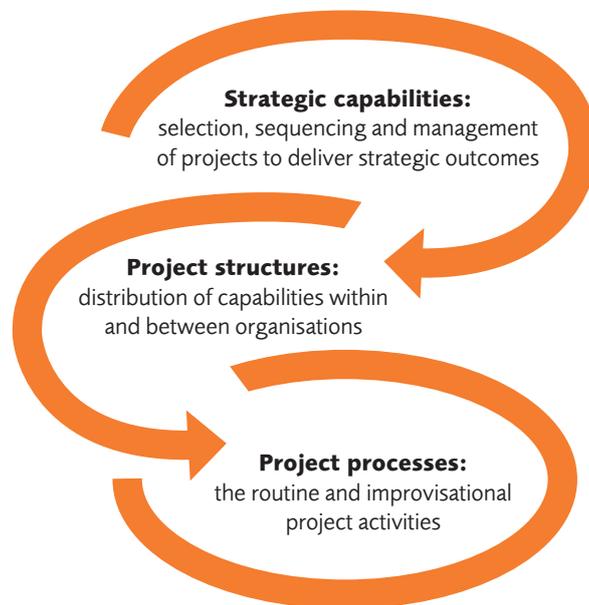


Figure 1: Traditional cascading 'multi-level' capability model

To do this, Project X brought together several academic disciplines that see the world through different 'lenses' [6] to investigate different aspects of capability, leadership, governance, decision-making, risk and control, supply chain and knowledge management [7]. Illustrative case study research is presented in the appendix.

The cases identified two common themes:

- Plurality, temporality and shifting ground are inherent facets of the complexity within and across projects that cannot be removed and are difficult to mitigate or manage.
- Standardised toolboxes and techniques may oversimplify these facets.

Figure 2 describes the relationship between these three facets of complexity captured in the case study findings.

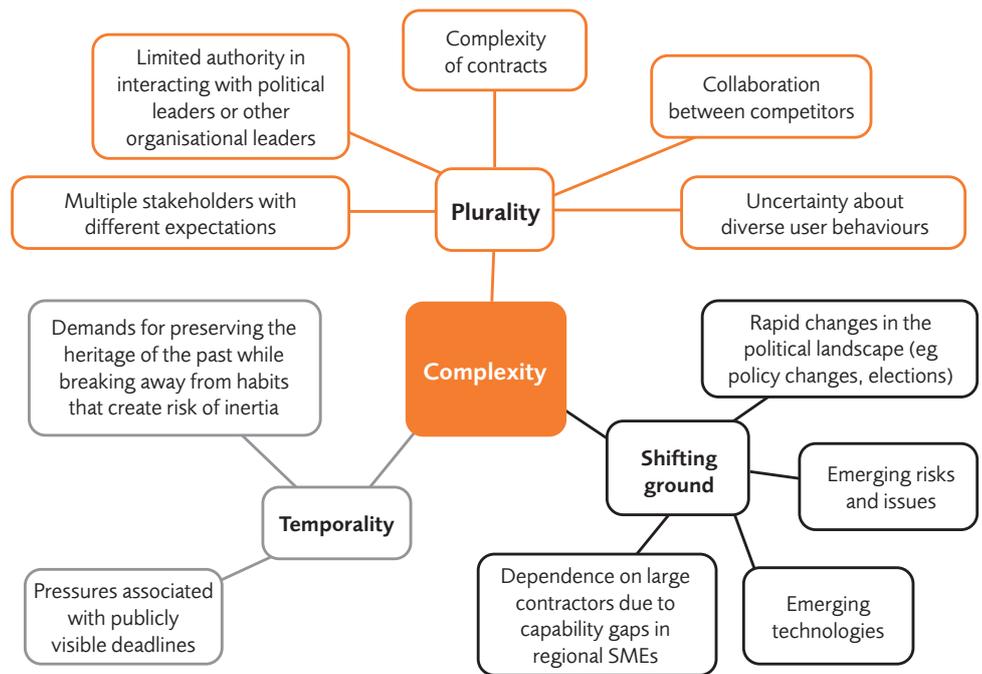


Figure 2: Complexity themes

The cases also recommend sharing knowledge across different communities of practice, as capability development requires diverse and collective thought with multiple lenses and perspectives focused on a central problem.

Figure 3 (below) illustrates these points.

**Leadership: Responding to complexity (APM report, May 2019) [8]**

This report shows that effective responses to the complexities inherent in the government's major transformation project portfolios rely on a multi-level approach, capitalising on the combined contributions of formal and informal leaders located at the level of the project, organisation and the broader environment.

**Case study of the restoration and renewal of Palace of Westminster**

The findings of this case study show the intricate link between governance, leadership and decision-making capabilities. They show that governance structures formed at the intersection of politics, policy and project management, as well as public and private sectors and leadership, shape how strategic decision-making processes are developed and linked together at the early stages of large-scale infrastructure projects. (See page 17.)

**Case study of the construction of Heathrow Terminal 2**

The research cautions against risk management approaches that seek to oversimplify the management of risk into a form of accountability management that mitigates risks by demanding compliance. It highlights that risk management is intertwined with accountability management and the two can affect an appetite for learning and innovation. (See page 20.)

*Figure 3: Illustration of the multi-level understanding of capabilities through multiple lenses*

In summary, standardised project management techniques tend to oversimplify the plurality of projects, the difficulty in managing shifting ground and the challenges of temporality. The case studies recommend developing capabilities that are informed by different perspectives and bodies of knowledge that transcend disciplinary and professional boundaries [9]. However, making connections between different lenses and levels is hard and takes time. Nevertheless, societal grand challenges [10], such as climate change, societal inequalities and recovery from the severe social and economic effects of the pandemic, justify this extra effort.

### **3.2 From prescription to engaged scholarship**

A further key finding of our research was that the research process facilitated learning between practitioners in the field and academic researchers. Traditionally, project management research takes a prescriptive stance, viewing management issues as problems that need to be solved by generalising from a particular case. This research certainly has value, but it does not engage with the day-to-day management of projects.

Another approach to project scholarship is more interpretive, considering major projects as unique manifestations of organisational phenomena. This type of research seeks to understand a specific aspect of projects, while acknowledging that explanations are inherently incomplete but part of a larger complex picture.

Our cases use a 'third type' of project scholarship – an engaged scholarship [11] approach that works closely with practitioners to reflect on their practice and offer pragmatic ways forward [12]. This creates a bridge between practitioner knowledge and the latest evidence from project studies and neighbouring disciplines [13]. This approach can produce a deeper understanding of 'what works' because the researcher is not fully immersed in practice. Instead, they can take a critical view of the taken-for-granted assumptions that guide situated practice and help consider the settings to which this learning can be transferred.

### **Parliamentary inquiry**

Our research evidence informed Project X's written submission to the inquiry held by the Public Administration and Constitutional Affairs Committee into how well major projects are managed by government, asking cross-cutting questions about how well the government delivers projects, its ability to learn from mistakes and the usefulness of published information for holding the Government to account.

### **Departmental strategy making**

Evidence from the case study on gender (in)equalities and equality, diversity and inclusion interventions in the UK infrastructure sector is used to produce a government research report that will be included as an addendum to the Department for Transport's Transport Skills Strategy 2021.

### **Learning and development**

The Hinkley Point C case has inspired two teaching cases. One won a scholarship by the Case Centre and features on its website. The restoration and renewal of the palace of Westminster case is used in teaching at the Bartlett School of Sustainable Construction, University College London. Heathrow Terminal 2 is also a teaching case used within the project management MSc at the University of Sussex Business School.

Figure 4: Illustrations of potential benefits of engaged scholarship

## **3.3 Extending reflective to reflexive learning**

The case studies demonstrate how engaged scholarship can play an important role in examining a breadth of evidence to develop insights for future action.

This point extends the findings of the Rethinking Project Management Network and its work on reflective practice as a systematic probing of problems [14] and conscious effort to learn from the past.

In contrast, the Project X case studies describe:

- Moving beyond considering the past and present to also envision alternative futures.
- Shifting attention from individual reflection to collective reflection.

These two steps enable a more reflexive form [15] of learning, one that moves beyond reflecting on past events to *challenging and questioning* core assumptions. Rather than reacting to circumstance, it involves *shaping* situations [16] and thinking more broadly about complexity and shifting ground.

Reflexive learning is only possible if structures and routines support this form of inquisitive inquiry [17]. However, if project structures create a silo mentality, collective deliberation becomes difficult [18]. If daily routines crowd out opportunities to search for alternatives, reflexive learning may be stifled [19]. Fundamentally, reflexive learning requires a culture that recognises the benefit of collective problem-solving and experimentation when faced with project complexity [20][21].

We recommend that reflexive learning and engaged scholarship can play a dynamic role in shaping strategic capabilities, project structures and routines.

## 4. Recommendation: Developing capabilities from values

Capability development takes place at an operational and strategic level when knowledge structures and routine processes are organised to enhance project performance.

“Our findings augment the traditional cascading view of capabilities with a more holistic model made up of multiple layers where core values sit at the centre”

Traditionally, studies of capability assume a multi-level design that cascades down from strategic expectations and ends with project processes and routines. This model suggests that capability development requires an alignment of strategic capabilities, structures and routines to achieve expected outcomes. In contrast, our research examines how capabilities are successfully developed in practice.

Three central findings emerge from this:

- In complex projects, plurality, temporality and shifting ground affect project performance.
- Rather than simplifying capability development into a standardised set of competencies, multiple lenses, reflexive learning techniques and engaged scholarship can help to navigate these three facets of project complexity.
- Diverse thought and reflexive practice require an operational culture and core strategic values that embrace reflexive thinking, collective problem-solving and experimentation.

These findings augment the traditional cascading view of capabilities with a more holistic model made up of multiple layers where core values sit at the centre.

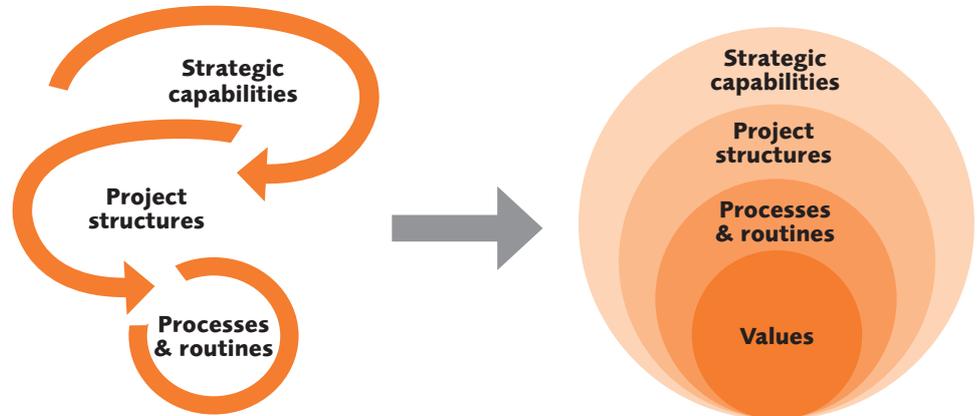


Figure 5: Proposed capabilities model

This 'onion' model has implications for how organisations seek to develop, build and distribute capabilities. Fundamentally, it recommends placing values at the heart of capability development activities. This means that, for complex projects, once strategic expectations are understood, the focus would move to establishing a baseline of values. Project organisation, routines and knowledge structures are then used as mechanisms to foster both stakeholder expectations and strategic values.

Within complex projects, the existence of multiple and sometimes conflicting stakeholder values means that this is not a straightforward task. However, in the current environment there is a need to refocus strategic values away from short-term aspirations of delivering projects on time and to budget, towards developing sustainable solutions based on social, economic and environmental values.

Engaged scholarship can offer significant benefits in terms of integrating sustainable thinking into reflexive practice. This would involve extending our current understanding of reflective practice to a new reflexive thinking model focused on the past, present but also envisionment of the future. This would involve collective inquiry and ongoing cross-functional and inter-disciplinary interaction.

**"Developing a more holistic view of capabilities has important implications for advancing the project profession"**

Developing a more holistic view of capabilities has important implications for advancing the project profession. In particular, it suggests a need to move beyond a preoccupation with the selection and development of individuals based on standardised competency frameworks. Instead, reflexive thinking skills are needed to envision alternative futures and navigate the challenges of post-pandemic recovery and sustainable growth.

These recommendations have important policy implications. Government policy plays a central role in providing strategic direction for projects. For example, the National Infrastructure Strategy emphasises 'better, faster and greener' outcomes from major infrastructure projects. Reflexive thinking creates a method that broadens what is meant by 'better, greener and faster' to envision how they influence collective perspectives about what is valuable. The next section illustrates how this mindset can reframe and broaden how the values of better, faster and greener are conceptualised.

## 5. Rethinking 'better, faster, greener' values

### Better

The National Infrastructure Strategy proposes the strengthening of assurance and decision-making regimes to deliver better infrastructure. The suggestion is to revise the methodology used in these regimes to ensure that the government is valuing the broader social, economic and environmental benefits.

Reflexive thinking challenges the notion of 'better' for whom and 'better' for when?

Developing a coherent and consistent understanding of 'better' tends to be made complex by;

- A variety of tensions and demands emerging from diverse stakeholders' views.
- Continuous shifts in values and priorities during the life of a project as change emerges.

In addition, the framing of 'better' to reflect the values underpinning established systems can lead to incremental change rather than transformational change. This may result in blind spots with respect to equality, diversity and inclusion.

Evidence from the cases suggest that an over-emphasis on assurance and decision-making regimes may lead to missed opportunities for collective and iterative learning and innovation. These issues have become particularly important in a post-Brexit environment with challenging expectations set by the net-zero target and aspirations for post-pandemic recovery.

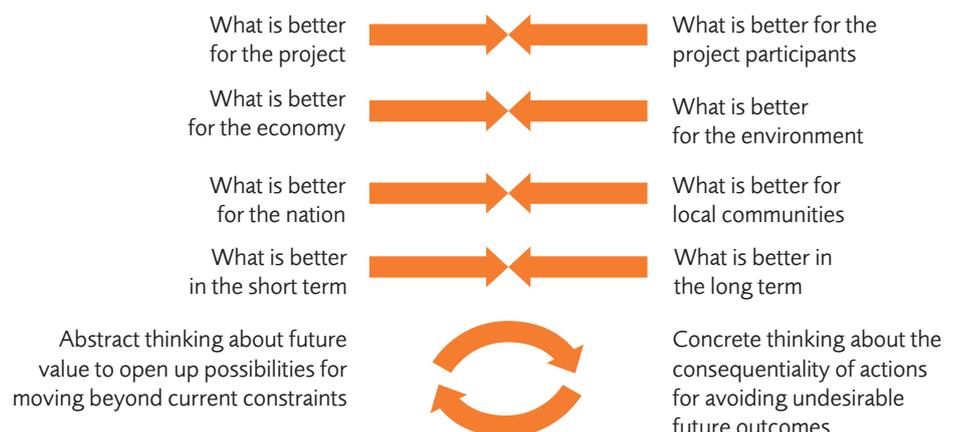


Figure 6: Tensions and shifts in developing an understanding of 'better'

## Faster

The National Infrastructure Strategy proposes simplifying and shortening processes such as the consents they need to proceed and procure contracts, while using modern methods of construction, new skills and a strategic relationship with industry.

A reflexive mindset would be aware that the notion of 'faster' combined with urgency needs to be treated with caution. A sense of urgency is a double-edged sword – it can be beneficial [22], but it may also lead to crucial pitfalls.

### A sense of urgency can constrain:

- collective inquiry into understanding highly uncertain problems and developing innovative responses;
- creation of long-term value;
- increases the number of projects delivering change into the same environment;
- and thereby creates uncertainties.



### A sense of urgency can be beneficial for:

- delivering results without delay;
- mobilising action – mainly to mitigate immediate risks;
- creating an opportunity for imagining new futures, and thereby creating a momentum for change.

Figure 7: Sense of urgency as a double-edged sword

## Greener

The National Infrastructure Strategy proposes considering the requirements of net zero in every stage of the project life cycle and continuously considering technical solutions that more effectively achieve decarbonisation outcomes.

Reflective practitioners would collectively recognise that climate change is a grand challenge – there are no guaranteed solutions and multiple pathways may be interconnected. Reducing environmental values to economic formulas associated with net-zero targets, or only focusing on the current pipeline of government projects, may lead to blind spots. The diagram below describes ways of conceptualising greener values.

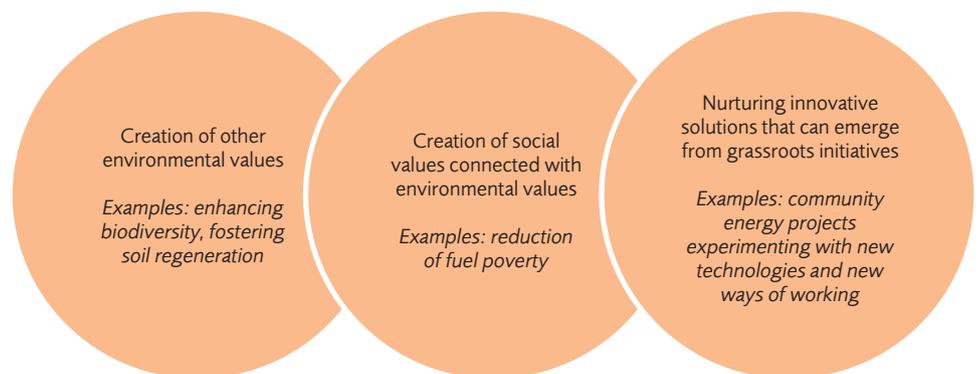


Figure 8: Potential blind spots

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**“Reflexive thinking will play a central role in delivering the government's ambitions for a better, greener and faster economy”**

## **6. Concluding thoughts**

Policy goals for post-pandemic recovery and growth require a new way of thinking and capabilities that foster future-focused and sustainable solutions. This report presents a new model that can help navigate this challenge.

Reflexive thinking will play a central role in delivering the government's ambitions for a better, greener and faster economy. Accordingly, engaged scholarship is crucial for building a pragmatic bridge between practice and the relevant bodies of knowledge. As this report demonstrates, engaged scholarship can also deliver major benefits where academics act as a critical friend to guide innovative thinking away from taken-for-granted blind spots and simplified conceptual debates.

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## **Appendix: Illustrative case study summaries**

In this section, summaries of the five case studies are presented as illustrations. They explore capabilities through different lenses: strategic front-end capabilities, leadership during change, redressing gender inequality, supply chain integration, management of risk and control capabilities. These topics are developed with engaged scholars immersed in different settings, from Hinkley Point C to the Palace of Westminster and Heathrow.

## Case study 1: Restoration and renewal of the Palace of Westminster [23]

### Strategic decision-making and governance capabilities

Dr Siavash Alimadadi, University of Sussex Business School

The restoration and renewal of the Palace of Westminster programme is the biggest and most complex renovation of a heritage building ever undertaken in the UK.

Drawing on a real-time, longitudinal case study of the inception of the restoration and renewal of the Palace of Westminster programme, the research has been investigating how organisational actors develop a strategy for an uncertain and highly contested future, while safeguarding ongoing operations in the present and preserving the heritage of the past.

Adopting what the academic literature refers to as the strategy-as-practice perspective, the research examined how politics, policy and project management, as well as public and private sectors, intersect and shape the governance structure, later called 'delivery authority' and 'sponsor body'.

The findings indicate that at the early stage of programmes, managers navigating a path forwards experience tension between focusing on steering away from an undesirable future outcome (eg asset failures) and orientating towards a desirable future (eg achieving programme goals). The research found that the underlying complexity of these tensions cannot be simply "wished away" through shifts in actors' perception of them and may require changes in hierarchical and relational arrangements among organisational actors (eg boundaries between delivery authority and sponsor body). Such interdependent changes helped actors overcome established boundaries and reflect on connections between the different parts of the programme, while focusing on creating an organisation with the capabilities required to deliver such a large, complex and strategic programme of work.

Using these findings, the research developed an integrative framework that can be used as a diagnostic tool to understand how various processes are developed and linked together in preparation for a large-scale infrastructure project to enter to the substantive state. This framework also considers how the project leadership might mobilise these linkages to improve decision-making throughout the lead-up period to the substantive state.

## Case study 2: Maximising gender equality in UK major infrastructure projects

### Governance and leadership capabilities

Phillippa Groome, University of Sussex Business School

Gender equality is a global grand challenge, positioned by the UN as its fifth Sustainable Development Goal. To reflect the significance of this challenge, the Infrastructure and Projects Authority has integrated gender considerations throughout its Project Development Routemap (2020).

This research explores how major projects can improve the delivery of equality, diversity and inclusion (EDI) interventions across the UK infrastructure sector. Gender problems are used to unravel the sensitive issues underlying interventions, as well as the complex challenges practitioners face when delivering them.

The case findings are based on a study commissioned by the Department for Transport (DfT). A series of 45 interviews and six focus groups were held with policymakers, practitioners and apprentices. Over 30 different public and private sector organisations contributed. Case findings will be fed into the DfT's upcoming Transport Skills Strategy, with a policy report published in autumn 2021.

The case reveals how organisational change is difficult, made even more so when change relates to EDI. Often, policies such as gender championing or different forms of positive discrimination can lead to unintended consequences that may hinder progress. Nevertheless, for diverse talent to thrive, organisations need to take EDI interventions seriously.

This research explores the benefits of the 'learning organisation', which strategically pioneers new working practices in favour of EDI, using a change management programme. However, this approach requires a holistic performance management system to support evidence-led interventions and experimentation. To 're-freeze' change there are significant benefits from taking a systemic approach to interventions, with targeted reporting reinforced by a programme of grassroots advocacy. Finally, these changes can be maintained if the organisational environment encourages reflective dialogue and constructive learning.

## Case study 3: A comparative study of strategic change projects in the UK government and financial services industry

### Leadership capabilities

Dr Dicle Kortantamer, University of Brighton

As the National Audit Office has pointed out, transformation projects raise the greatest risk of failure, because they are particularly prone to challenges in defining the scope, engaging with stakeholders and managing performance.

This interdisciplinary research brings together studies of leadership and projects to identify different understandings of project leadership and how they shape how we respond to challenges facing individuals, organisations and societies. To do this, it follows what the academic literature refers to as social theories of practice and draws on in-depth case studies of strategic change projects within a UK government department and a UK-based financial services institution.

The findings reveal the importance of departing from the production of standardised categories and models of project leadership that privilege individual competencies and rational goal-oriented behaviour. Instead, the research suggests understanding and enhancing dynamically formed combinations of leaders that contribute to the ongoing work of leadership in a particular setting by reflecting on the conditions that may render them more or less effective (eg bureaucratic rules, competitive market mechanisms). These combinations may bring together a variety of leadership sources, including formal leaders, informal leaders and leadership teams that are dispersed across multiple organisational levels as well as within and beyond the project boundaries.

More broadly, the research demonstrates that a direct translation of organisational leadership theory and practice into project settings can be problematic. Crucially, it draws attention to the distinct conditions of projects that make the work of leadership particularly complex, such as the project deadlines and transient participation in project work.

Moreover, findings from both of the cases indicate the need for departing from the dominant assumption of a positive linear cause-and-effect relationship between leadership and project success towards asking fundamental questions about how and when the work of project leadership matters in the delivery of vital societal, economic and environmental outcomes.

## Case study 4: Riskwork in the construction of Heathrow Terminal 2 [18]

### Risk management and control capabilities

Dr Rebecca Vine, University of Sussex Business School

The National Infrastructure Strategy anticipates more streamlined and standardised processes for assurance, monitoring and evaluation. However, this case reveals the intertwined nature of accountability and risk management and the benefits of flexible and interactive approaches to managing risks in complex settings.

This research examines the link between accountability management, everyday risk management and project-based learning. It develops a longitudinal case of the construction of Heathrow Terminal 2 (T2), a £2.5bn megaproject on the Eastern Campus of Heathrow Airport that successfully opened on time and to budget, despite an initial risk management ethos that emphasised boundary preservation.

A novel approach to the study of risk management is used that departs from traditional disaster studies. Instead, the concept of everyday 'riskwork' is developed to consider the role and composition of an architecture of reports, forms and metrics that maintained everyday risk management practice. This approach traces the evolution of the regulatory risk apparatus that mitigated the destabilising effects of emergent forms of residual risk during the execution of the project.

The case findings reveal a sequential pattern of riskwork phases that moved from initial concerns about 'one version of the truth' to strategising with a 'dashboard' and a final 'golden thread' to engage suppliers in risk talk. Progress was sustained by paying attention to which 'residual' categories of risk were excluded. As the programme progressed, riskwork became less about managing compliance and more about learning from emergence.

These findings describe an important relationship between innovation, learning from emergence and an adaptive riskwork architecture. They also have significant implications for the traditional approach to managing risks that seeks to eliminate deviations from plan by constructing audit trails and using standardised control processes to monitor and assure delivery commitments. We know that megaprojects are notoriously unreliable, with a long history of flawed plans manifesting in a break-fix pattern of delivery as unforeseen risks emerge. However, the T2 case demonstrates how the emergence of residual risks can become an opportunity for learning. Here the interactive use of reports, forums and metrics played a central role in enabling flexibility when their use extended beyond measuring variances to brokering consensus about which risks should be a priority and who might be made accountable.

## Case study 5: Integrating local SMEs in the Hinkley Point C supply chain and building their capabilities

### Supply chain capabilities

Dr Jas Kalra, Newcastle University Business School

In addition to designing and delivering a nuclear power plant, a key focus of Hinkley Point C has been to enhance prosperity in the south-west of England by developing SME capabilities in the region.

The study examines how a large, inter-organisational project integrated small and medium-sized enterprises (SMEs) in its complex supply network and developed their capabilities. Furthermore, it focused on the site supporting operations, which are an under-researched facet of large inter-organisational projects and examined how they could provide a unique opportunity to drive social value.

The traditional model of contracting in large inter-organisational projects has been that the client organisation outsources the contracts to big tier-1 contractors, who work with their established suppliers. This gives the project organisations the ability to shift the project risk (in theory) to established organisations. However, it means that the large inter-organisational projects, potentially operating in a rural environment, do not benefit the community there in the short to medium term.

To address this issue, Hinkley Point C (HPC) decided to work towards contracting with local organisations, with a view of delivering value at the regional level in a more immediate term. While this strategy was welcomed by the local councils and the community, the supply chain team at HPC soon realised that the majority of local organisations in the Somerset region were SMEs, with no experience of delivering on the scale required by major projects. The research examined the process by which HPC worked with the regional suppliers to scale their capabilities to their requirements, and in the process created social value.

The research was undertaken at HPC Supply Chain Innovation Lab, headed by Professors Jens Roehrich and Brian Squire, based at the University of Bath School of Management. The lab is a collaboration between the University of Bath School of Management and EDF Energy. The study was qualitative in nature, and consisted of numerous site visits, interviews with supply chain managers, project managers and regional SMEs, and analysis of archival documents.

The findings revealed that large, inter-organisational projects looking to incorporate regional SMEs in their supply chains should consider three steps:

- (1) Finding and engaging the right regional players, including regional intermediary organisations and internal regional champions, and incorporating informal socialisation mechanisms.
- (2) Developing and scaling up operations and capabilities by keeping regional SMEs motivated, engaged and solvent, identifying and mapping their capabilities to the project's requirements, and utilising appropriate governance mechanisms.
- (3) Adopting a long-term view of leaving a legacy behind, with a view of making the local business self-sustaining beyond the timeframe of the contract [24].

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