Delivering Impact in an Expertise Economy (2)

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- As the economy has moved from manufacturing to services, productivity-enhancing innovation increasingly comes from projects that upgrade processes, systems and infrastructure.
- Although a significant part of UK Government policy is also implemented through projects, they have historically suffered from delivery problems - coming in late, over budget, and failing to deliver the benefits promised.
- The problems found in modern projects are too complex to be solved by research “discoveries”, but research is increasingly important, especially co-designed and co-produced research that deepens the expertise of practitioners and academics.
- The ESRC and Infrastructure and Projects Authority (IPA) support ‘Project X’ - the world’s largest interdisciplinary network, researching how to improve the delivery of major projects.
- Project X brings together academics with field expertise to collaborate with practitioners to deepen understanding of project delivery, manage the ARIs for the Cabinet Office and work on politically sensitive topics with the protection of NDAs.
- This impactful model of interdisciplinary research has inspired new mandated government practice, professional standards and trained a new generation of interdisciplinary scholars – demonstrating the value and importance of field expertise and engaged scholarship.

The first blog in this series examined the growing importance of research in a modern information-based service economy and the fundamental role that social science research plays in deepening the expertise needed for innovation and economic growth. In essence, we described the importance of developing ‘talent’ and research expertise to do this.

This second blog examines how the problems found in modern projects are also too complex to be solved by research “discoveries”. It examines the ideas behind the creation of ‘Project X’, an impactful UK-based research collaboration between the Economic and Social Research Council (ESRC) and the Infrastructure and Projects Authority (IPA), a government department within the Cabinet Office and Treasury.

Project X – Better Project Delivery in Government

As the economy has moved from manufacturing to services, productivity-enhancing innovation comes increasingly from projects that upgrade processes, systems and infrastructure. A significant part of UK Government policy is implemented through projects, which have become the key organisational structure used to orchestrate service improvements around decarbonisation, levelling up, and the delivery of major military, R&D, public health, and IT systems.

The current Government Major Projects Portfolio of large high-risk projects now exceeds £600bn and is set to grow. The UK’s decarbonisation plans require project-based capital expenditure equivalent to five London Olympics every year for the next 25 years. Projects now generate about a
quarter of global GDP\(^1\), and many of the UK’s most competitive sectors, such as pharmaceuticals, aerospace, engineering consultancy are project based.

Although projects provide a flexible structure for experimentation and learning, they also tend to suffer from dire performance, delays and excessive cost overruns. These problems grow as the size, complexity, software intensity and political tensions increase. While the private sector can walk away from overly complex projects, the public sector is the risk manager of the last resort. If the government needs delivery, project professionals must deliver. To address this, the UK Government formed the Infrastructure and Projects Authority (IPA) in 2016, following the merger of the Major Projects Authority and Infrastructure UK. The IPA reports to the Cabinet Office and HMT and is responsible for monitoring major project delivery and providing guidance to project professionals within government.

During 2018 a research collaboration, Project X, was formed across 13 universities and 10 government departments with the generous support of the ESRC (with initial Impact Accelerator Account (IAA) awards and a substantive £1.1m grant) and the project professional bodies (who provided £400k in co-funding). Today Project X engages a large network of researchers, spread across a growing number of universities and government departments and is part of the IPA’s organisational structure.

Over the last three years Project X has trained 12 early career researchers, initiated 31 new collaborations, 111 engagement activities and generated 78 publications. This impact has been formally recognised by the UK Government. Fiona Spencer, Director of Function, Profession and Standards within the IPA attributes new developments within the government’s mandated Project Delivery Framework directly to Project X.

“Project X provides a way for people working in major projects to engage with academics in the field; developing that thinking and making sure that academic expertise is fed by and reflects the actual real-life practice of project delivery” (Spencer, 2021)

This kind of collaborative innovation doesn’t follow the traditional impact model that diffuses “research discoveries” to users. Instead, it works by creating an environment where practitioners and academics collaborate to address complex problems that constrain project delivery, using pragmatic problem-solving frameworks to structure learning.

What did the collaboration research?

Project X research primarily focuses on the £600bn+ Government Major Projects Portfolio. Delivering these projects requires very different skills to traditional project management approaches developed in US aerospace in the 1950s where in-house engineers worked with detailed plans, structured systems analysis and design methodologies (SSDM) and standardised control frameworks (CPM and PERT) to keep projects on track.

By contrast, modern projects are much more complex and unpredictable. They are often integral parts of a major transformation programme seeking to generate long terms benefits from regeneration or decarbonisation. Sometimes they require the redesign of entire organisations, the introduction of new digital front- and back-end services, and changes to how and where civil

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servants work and engage with the public. Even large infrastructure projects are no longer managed as predictable - dig a hole and fill it with concrete form of engineering projects.

The real work of delivering projects now requires project delivery professionals to solve complex and unpredictable problems that cut across social science and engineering disciplines. Deep levels of project uncertainty cannot be meaningfully reduced to a quantifiable risk waiting to be fed into formal tools and techniques. Instead, a very different culture of governance and control is needed able to work with the messy, uncertain, and political nature of projects.

Successful project delivery draws on adaptive styles of leadership and performance management approaches that emphasise collective responsibility. Parliamentary cycles may also play a significant role. For example, in Brexit-related projects, initial project plans had to commence well before there was a clear view of what the final negotiated outcome might be. In the restoration of the Palace of Westminster\(^2\) the framework to strategically govern the programme gradually emerged as the project developed over time.

Project managers need to understand the subtleties of stakeholder engagement, be prepared to manage risks and be responsive to political scrutiny. High-performing project managers also need to act in the face of a constant stream of unpredictable problems. Traditionally they accumulate expertise through professional training and education. Senior government delivery professionals also attend leadership academies at the University of Oxford and Cranfield University to improve management skills.

Project X has added to these stocks of knowledge by raising the awareness of the latest research whilst working with senior civil servants to strengthen expertise in areas of research interest. Here research has focused on how deep levels of uncertainty can be strategically managed and how flexible models of governance and distributed approaches to leadership can be applied to improve delivery performance. This has deepened understanding of the real-life practice of project delivery, why people and institutions behave as they do, and how that behaviour might be improved.

**How did Project X create a research infrastructure for impactful research?**

Project X's model of engaged research transcended individual academic disciplines, bringing together a diverse group of academics from the social and engineering sciences to collaborate with practitioners. This was a significant challenge to manage. The initial research infrastructure drew heavily from previous ESRC funded research projects and the [ESRC’s Impact Toolkit](https://www.esrc.ac.uk/impact-toolkit/). It then took 2 years to negotiate non-disclosure agreements to de-risk research in politically sensitive areas. This time may seem excessive, but it enabled the academic team to more fully appreciate the political complexities of project delivery.

ESRC funding was used to develop and maintain a governance structure to oversee research prioritisation and implementation. By 2019 the Cabinet Office’s strategic areas of research interest (ARIs) were aligned with the research questions set out in the grant. Over time a themed structure was adopted where communities of interest worked to generate synergies between research topics and government priorities. A study of best practice in international project and programme research centres was commissioned to hone the delivery approach. The six fundamental principles of the collaboration are summarised below:

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1. **Prioritise impact:** ensuring research is valuable to users is difficult because the market for research is ‘thin’, in the sense that it is difficult for researchers to know what research-users want and difficult for research-users to find relevant research (that may be behind a paywall). To solve this problem all the research projects focused on the bottlenecks constraining improvements identified by research users in industry and government. Research was prioritised based on where it could leverage the largest benefits over time. Even small improvements in a £600bn+ portfolio could generate large impacts.

2. **Team diversity:** Project X set out to address a major issue with the diversity of academic work in project management. By bringing in academics with non-traditional backgrounds, especially with previous industrial experience, a wider range of perspectives were engaged. This also helped to address some of the more complex and politically ambiguous issues in the field.

3. **Deepen expertise:** resources were organised into themed strategic priority areas. This created self-managed research communities with oversight from theme leaders from government, industry and academia. Senior academics provided hands-on mentoring to support early career researchers (ECRs) who gained access to data. For ECRs this would have been impossible without network support.

4. **Sustain high trust research networks:** very different work cultures collaborated based on a common desire to improve project delivery. A carefully designed governance structure was animated by a routine set of meetings that acted as forums where strategic risks and operational issues were openly debated by academics and civil servants. Processes were developed, drawing on research in Innovation Management, to select high potential research topics.

5. **Pool resources to generate synergies:** industry partners provided in-kind support and helped to organise access to major projects. The professional bodies (APM, PMI and MPA) were an integral part of the team providing advice on how to expand the research network and share research with an international audience. Close collaboration with central government helped to channel findings directly into mandated government guidance.

6. **Emphasise community growth not exclusivity:** communications efforts emphasised community growth to encourage a diversity of perspectives. Training, research and funding was open to all ECRs who were willing to join in, with conferences and training events set up to showcase emerging talent.

**Conclusion:** To enhance research impact we need to invest in field expertise

In a modern information-based service economy impactful research requires diverse and deeper stocks of knowledge. The problems found in modern projects are too complex to be solved by pre-existing research discoveries. Instead, they require collaborative research effort between academics, government, and industry.
Project X demonstrates how it is possible to create an impactful model of interdisciplinary research that directly feeds into new mandated government practice and professional standards. However, this was only possible because of the careful orchestration and maintenance of a high-trust research network. Managing this was not easy; it required goodwill, a departure from individualised behaviour, trust and a common belief in the importance of our work.

This experience has important implications for science policy in the UK. The Project X approach is a fundamental departure from the traditional model of impact based on knowledge transferred from research “discoveries” found in academic papers - disseminated by (often individual) academic experts to users. Instead, impact came from the indirect effects of the research process, networks, instrumentation, methods and trained students. This impact came first and academic papers later.

Project X reveals how the successful co-production of research ‘with impact’ requires field-based research expertise and management capabilities to sustain high-trust networks. These types of expertise are in short supply. If we are serious about ensuring that research enhances prosperity and welfare, we need to deepen our stocks of expertise in this area and more fully recognise the value and importance of engaged scholarship.