We live in an age of projects – Research impact should reflect this

In the second of two blogposts exploring how research impact is increasingly dependent on expertise embedded within organisations rather than traditional research outputs, **Rebecca Vine** *and* **Paul Nightingale** *discuss the role of projects as a focus for collaborative research activity. Highlighting how projects are vital to innovation in service-based economies, they show how a recent research collaboration has aligned research expertise to improve the delivery of some of the UK's largest projects.*
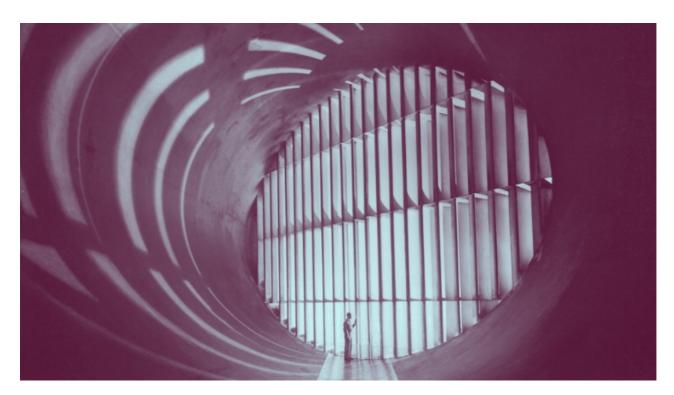
In our previous [blogpost](#), we examined the changing importance of research in modern information-based service economies. Here, we discuss the vital role of projects for modern innovation, the need for expertise to improve their performance and how research and practice can be integrated to build that expertise.

The rise and rise of the project

Projects are central to the operation of the state and economy. It is estimated they generate about a quarter of global GDP and many of the UK's most competitive sectors, such as pharmaceuticals, aerospace and engineering consultancy are project based. Large parts of Government policy are implemented through projects. In the UK, the Government's Major Project Portfolio of large high-risk projects exceeds £600bn, with levelling-up projects, public health initiatives, major military systems, R&D and IT-based service improvements. This is set to grow with UK [Decarbonisation plans alone](#) equivalent to delivering five London Olympics *every year* for the next 25 years!

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Projects provide a flexible structure for experimentation and learning, but they also tend to suffer from variable performance, delays and 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 last resort". If the government needs delivery, project professionals must deliver. To support their work, the UK Government formed the Infrastructure and Projects Authority (IPA) in 2016 within the Cabinet Office and Treasury, giving them responsibility for monitoring project delivery performance and providing guidance to project professionals within government.

Major projects demand very different capabilities than the post-war projects we looked at in our previous post. Traditional project management emerged in the US aerospace sector, where in-house engineers kept projects on track with detailed plans, structured systems analysis and design methodologies (SSDM) and standardised control frameworks (CPM and PERT). Modern project professionals face far more social, organisational, political and technical complexity, and problems that cut across a wide range of social science and engineering disciplines. Projects can require the redesign of whole organisations, the introduction of new digital front and back-end services and changes to how civil servants engage with the public. Project delivery professionals must deal with a constant stream of unpredictable problems and need to understand the subtleties of stakeholder engagement while being responsive to political scrutiny. For example, many projects to implement the UK leaving the EU were urgent, highly political and engaged numerous stakeholders. Unlike US aerospace projects from the 1950s, they had to commence well before the final negotiated outcome was even known.

Project-based research & Project X

Given governmental aspirations to improve project delivery performance in this more complex world, Project X was formed in 2016 to improve connections between research and practice. In 2018 it became an ESRC-funded research programme bringing together 13 universities working across 10 government departments and collaborating with 3 professional bodies (Association of Project Management (APM), Major Projects Authority (MPA) and Project Management Institute (PMI)). Today it engages the world's largest network of researchers working on project delivery through six themed communities of interest. Researchers are based within the Department for Transport, Ministry of Justice, MoD, National Highways and major projects such as: HS2, Crossrail, Heathrow, Restoration of the Palace of Westminster and Hinckley Point C.

Research is prioritised to leverage the largest benefits to research users, with the research portfolio focused on bottlenecks that constrain performance. Given the size of the £600bn+ portfolio, and the long-term impact of projects on the economy; even tiny improvements can generate significant impact. To align research with user needs, and deepen expertise in key areas, resources are organised into priority areas with oversight from theme leaders drawn from government, academia and industry.

Over the last three years, a research investment of just over £1m has trained 12 early career researchers, generated 31 new collaborations, 111 engagement activities, 78 publications and won numerous prizes. Fiona Spencer, Director of Function, Profession and Standards within the Infrastructure Projects Authority, 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)

The research has deepened understanding of how to manage the unpredictability of project delivery, why people and institutions behave as they do and how behaviour might be improved. It has highlighted some of the costs and benefits of attempting to reduce project uncertainty into discrete quantifiable risks, and the limits of formal tools and techniques when dealing with social, political and organisational complexity. It also reveals how alternative cultures of governance and control are better at dealing with the messy and political issues that emerge in modern projects. This includes more adaptive styles of leadership and a range of structured frameworks to orchestrate collective decisions about costs and benefits, and ways of developing, implementing and closing-out projects.

How did Project X generate impact?

The success of this collaboration reflects the changing demands for research highlighted in the previous blog. Modern projects are much too complex to be 'solved' with research discoveries. However, research is very valuable because it develops stocks of knowledge and field-based expertise. Getting this kind of field-based research to work effectively 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. To solve this, research was co-designed with users to focus on areas that scored highly in terms of reach and significance for the government. By 2019 the Cabinet Office's Areas of Research Interest aligned with the ESRC grant.

Managing this kind of collaboration is not easy and requires cooperation amongst very different work cultures and disciplines. This was enabled by an adaptive governance structure with a research board overseeing progress and encouraging collaboration between government, academics and industry. This built trust, a research community with a common identity and belief in the importance of the research.

This form of 'mode 2' knowledge production requires long-term engagement. For example, it took two years to negotiate the non-disclosure agreements to gain access to data on politically sensitive topics. Nevertheless, this investment of effort generated a strong network with the professional bodies (APM, PMI and MPA) pooling resources to disseminate research to international audiences. Similarly, there was less need for traditional forms of "impact work" because partners in Government departments fed research findings directly into mandated government guidelines.

What does this tell us?

In an information-intensive service economy, productivity-enhancing innovation increasingly comes from projects that upgrade processes, systems and infrastructure. Expertise is needed to manage their unpredictability, socio-technical complexity and messy politics. Collaborative inter-disciplinary research, rather than disciplinary research findings, can help build this expertise.

Project X demonstrates how far-reaching impact can be generated by going beyond the linear transfer of knowledge through academic outputs. In a modern economy, impact increasingly comes from the indirect effects of research. For example, methodologies that advance mode-2 knowledge production, high-trust networks that amplify impact and investment to build a new generation of engaged scholars who can work with senior civil servants on strategically significant research. Sustained impact requires field-based research expertise and the ability to manage high-trust collaborations. These forms of expertise are both in short supply. If we are serious about ensuring that research enhances prosperity and welfare, UK science policy needs to recognise the value of this type of engaged scholarship and invest to support it.

Readers can find more information about Project X on the project the website.

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