

# INNOVATING PLACES

Investing in Local Research and Innovation to Build Local  
Industrial Capabilities to Enhance Local Economic Benefits

## OVERVIEW REPORT OF KEY FINDINGS

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*“Our cities, towns and rural areas have competitive advantages that will be essential to shaping our economic future. Yet many places are not realising their full potential. The UK has greater disparities in regional productivity than other European countries. This affects people in their pay, their work opportunities and their life chances. Every region in the UK has a role to play in boosting the national economy.”*

UK Industrial Strategy 2017, p. 216

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# 1 Introduction

This paper examines how the UK Government can develop place-based research and innovation funding programmes that invest in local research and innovation systems to drive significant local economic benefits. It brings together the key findings from a project led by the Centre for Science, Technology and Innovation Policy (CSTI) at the University of Cambridge on behalf of UK Research and Innovation (UKRI) to bring together leading academic experts with different perspectives on this topic to reflect on key issues that need to be considered and implications for the UK.

The pressures to develop place-based industrial policies follow a growing recognition in the UK of the significant disparities in economic performance across its cities, towns and rural communities. Further, there has been a growing acceptance that improving overall UK productivity depends on increasing the performance of the cities and towns outside London and its environs. Against this backdrop the UK government's industrial strategy set out ambitions to develop place-based funding programmes for research and innovation that target the needs of specific places to deliver improved *local* economic outcomes. For the primary funder of this type of activity, UK Research and Innovation (UKRI), this represents a significant departure from their traditional model of funding research and innovation based on excellence wherever it is located. Their first attempt at place-based research and innovation funding is the Strength in Places Fund (SIPF) developed within the context of the industrial strategy.

To inform the development of place-based approaches for research and innovation funding in the UK, CSTI commissioned four papers from leading academics to reflect on the state-of-the-art evidence available and implications for the UK:

- Philip McCann on *UK Research and Innovation: A Place-Based Shift?*
- Michael Kitson on *Innovation Policy and Place: A Critical Assessment*
- Alan Hughes and Tomas Ulrichsen on *Value Chains, Systems Thinking and Science, Technology and Innovation Policy: Implications for place-based policy development in the UK*
- Michael Best and John Bradley on *Industrial capabilities, innovation and place*

The papers deliberately draw on insights and concepts from a range of academic perspectives including economic geography, innovation systems theories, operations and technology management, industrial and innovation policy, and capability theory. This recognises that, while much of the debate on place-based policies has occurred from economic geography and regional innovation systems perspectives, concepts and evidence from beyond these domains have the potential to provide valuable insights to the development and implementation of place-based research and innovation funding programmes.

To complement the academic insight papers, CSTI also examined selected international experiences in developing national-level place-based funding programmes targeted at delivering significant local impacts through investments in research and innovation. These international experiences highlight a wide variety of funding experiments being developed around the world.

Following the development of initial draft papers, CSTI hosted a roundtable bringing together the academic experts with senior policy officials to explore academic evidence and translate it into practical implications for 'place-based' funding programmes. This provided an opportunity for

leaders from UKRI and the Department of Business, Energy and Industry Strategy to explore together the rationale for investing in strengthening local research and innovation systems to deliver local economic benefits.

The evidence and expert insights gathered in this study attempts to account for the peculiarities of the UK's spatial context, not least its highly centralised and top-down economic governance structures compared with other large, advanced economies and a lack of any substantial capability at the local level to design and implement industrial and innovation policies (although this may be slowly changing). This presents particular challenges for interpreting evidence developed in other country contexts and reflecting on how they can be applied in the UK.

The paper is structured as follows. We first set out the emergence of place-based funding for research and innovation in the UK as part of the UK industrial strategy. We then explore key insights emerging from our review of international experiences in developing such programmes. Section 5 brings out the key messages from the suite of papers from the academic experts. Section 6 concludes and highlights key implications for UKRI moving forward.

## **2 Context**

### **2.1 The peculiarities of the spatial economic context of the UK**

The emergence of place-based R&I funding in the UK is set against a backdrop of significant and persistent productivity challenges facing the UK, with the nation struggling to recover any significant productivity growth since the onset of the global financial crisis in 2008 (see in particular the papers by McCann and Kitson). Critically the UK suffers from significant disparities in economic productivity across the regions and nations of the UK. McCann describes these inequalities in stark terms: “the productivity variations within the UK ... are as large as the whole of the Eurozone! Moreover, these enormous variations occur in a country the size of the US state of Wyoming. No other large industrialised country faces such productivity inequalities over such a tiny space.”

In many ways, the papers argue that the UK is a tale of two halves, both geographically and sectorally. In terms of sectors, there is a small set of high performing ‘gazelles’ and a long, fat tail of firms ‘snailing’ along the low road (Hughes and Ulrichsen, Kitson, McCann). These low performing companies are spread across the UK, with each region having both high and low performers. As McCann, Kitson, and Hughes and Ulrichsen all note, the productivity challenges of the UK are almost entirely unrelated to the star performers of UK industry but rather a result of poor diffusion of innovations into the lower performing parts of sector and regions.

McCann also emphasizes the significant spatial economic decoupling of the UK over the past few decade. He notes that the productivity shocks faced by the UK are very geographical in nature. Some areas – particularly London and its hinterland regions of the South East and parts of the East and South West close to London – recovered quickly from the 2008 crash and have since exhibited strong productivity growth. By contrast, many parts of the Midlands and Northern regions of England, along with Wales and Northern Ireland have struggled greatly, with productivity levels in many of these areas today no better than in the pre-crisis years. These differences were becoming evident in the decade prior to the crisis but have become greatly magnified since.

Another key distinguishing feature of the UK is it has perhaps the most centralised and top-down governance system of any large country in the industrialised world (McCann, 2019, this report). Indeed, the local institutional governance framework and structures have been in a state of significant flux over the past decade since the abolition of the Regional Development Agencies. Compared with other countries, there is therefore in the UK a distinct lack of sub-national capability for developing and implementing policy at the sub-national level, although this is slowly changing. This hampers the ability of weaker cities and regions to reconfigure and find new sources of added value. McCann indeed argues that the UK's governance system is wholly inappropriate for a large economy which is internally extremely heterogeneous.

The paper by Best and Bradley turns to the weaknesses in the science-to-innovation translation processes in the UK. They argue that UK has a world leading productive resource in the form of its science and engineering research system that is widely distributed across the nation. However, complementing the observations by McCann, they argue that this advanced technology knowledge base has thus far rarely been systematically managed to create a productive resource to contribute to develop *local* industrial capability. They suggest that a key bottleneck in the UK to the flow of knowledge along the innovation process chain, and the realisation of economic benefits from research spending is around translational research. Related to this, Kitson also points out the significant variations in regional absorptive capacity which, unless addressed, will significantly limit the ability of a region to benefit from additional investments in local research and innovation.

## **2.2 UK industrial strategy and place-based funding for research and innovation**

At the national level, politicians and policymakers in the UK are increasingly adopting a place-based narrative in many policy areas, including industrial and innovation policy (McCann, 2019, this report). This is reflected in the current UK industrial strategy with one of its central pillars focusing on 'place' and the need to rebalance the economy spatially (HM Government, 2017).

As the UK industrial strategy emerged, UKRI was established bringing together the seven research councils, Innovate UK, and Research England (the research and knowledge exchange functions of the former Higher Education Funding Council for England). Part of the rationale for its creation was to create an organisation that can tackle issues that cut across the (often fuzzy) boundaries between research and innovation, and across the disciplinary boundaries of individual research councils. UKRI is expected to play an active role in delivering the UK government's objective to reduce spatial economic imbalances. These pressures led UKRI to explore ways of departing from its traditional focus on funding research and innovation activity based on place-blind 'excellence' criteria.

The *Strength in Places Fund* (SIPF) reflects UKRI's first attempt to develop a funding programme for research and innovation to deliver place-based economic objectives. The fund, announced in the Industrial Strategy White Paper (HM Government, 2017) has now committed £236 million to two waves of projects to "support collaborative programmes based on research and innovation excellence in places right across the UK which can demonstrate a strong impact on local productivity"<sup>1</sup>. In particular SIPF identifies the following high-level objectives (UKRI, 2018):

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<sup>1</sup> <https://www.ukri.org/news/strength-in-places-fund-second-funding-wave-announced/>

- To support innovation-led relative regional growth by identifying and supporting areas of R&D strengths that are:
  - Driving clusters of businesses across a range of sizes that have potential to innovate, or to adopt new technologies;
  - In order that those clusters will become nationally and internationally competitive.
- To enhance local collaborations involving research and innovation.

Within these high-level objectives SIPF has the following specific objectives (UKRI, 2018):

- Funded activities must contribute towards significant, relative regional economic growth – i.e. must have a significant impact locally that closes the gap between that region and the best nationally.
- Funded activities must be in line with UKRI’s mission, where the focus is on supporting those businesses and research organisations at, or near to the frontier of the economy.
- That excellent research and high-quality innovation is completed, or underway as a result of funded proposals.
- That collaborations between local businesses, research organisations and local leadership are enhanced as a result of the funded proposals.
- That the evidence base around the impact of locally targeted R&D spending in the UK is improved.
- Funded proposals must deliver good value for money relative to the area being supported, and in terms of additionality.

Funding applications must come from consortia of local partners and must include businesses and research organisations, with strong support from the local leadership. Applicants are expected to determine, and justify the choice of, a relevant economic geography for their project and need not be limited to administrative boundaries such as local authority districts. Importantly the area should encompass all partners involved in the delivery of the project and where the primary benefits will be realised. In addition, applications to the fund must be aligned to relevant industrial, innovation and economic strategies and plans (e.g. local industrial strategies, science innovation audits (if available), city-region agendas, devolution agendas etc.).

### **3 Moving beyond local value creation to invest in value capture by local economies**

The competitiveness of a local economy is shaped by many factors, not least the configuration and the available resources, capabilities and infrastructures in both the local industrial base and the local research and innovation base (including not just universities but other research institutes, Catapults, and other technology and innovation organisations); all of which have typically emerged and evolved over many years. Note that while many local economies will not have a university or research institute in their city or town, with research performing organisations are spread around the country, many areas are not too geographically distant from one.

Other factors also play an important role in shaping the competitiveness of local economies. These include the wider institutional framework (which influences the behaviours of individuals and



organisations); the entrepreneurial dynamism of the area; the quality and mobility of local labour markets; local land markets; the local transport and communications infrastructure; access to key markets; access to finance; and the flexibility of the local system to adapt to changing socio-economic, technological and industrial pressures. These factors affect the ability of firms in the local economy to pursue new opportunities to create *and* capture wealth locally.

Reducing the economic inequalities that persist across the regions, cities and towns of the UK through place-based industrial innovation policies requires attention be given to how local economies both create *and* capture value. Local industries operate as part of wider industrial value chains that typically extend across the nation and often internationally. As such while investments may create additional value locally, only part of it may be *captured* there.

Additional place-targeted investments in the research and innovation base may help local industries to develop their capabilities in the area to pursue new opportunities to both create additional value and, crucially, capture more of it locally.

## **4 International experiences with place-based research and innovation funding programmes**

International experiences in funding programme development can provide valuable insights into the variety of experiments being developed around the world into how policies are being *implemented* on the ground. In some cases, these experiments have been evaluated and studied (by academics and practitioners) and can provide additional learnings beyond the key characteristics of the programme about what has worked and what has not. This section outlines key observations emerging from our review of international experiences in developing, at the national government level, funding programmes investing in research and innovation in specific places. It also captures insights from a number of international comparative studies of regional innovation policies and national approaches to cluster development produced by the Organisation for Economic Cooperation and Development (OECD).

It should be noted at the outset that many funding programmes were identified in these countries that are developed and implemented at the local level. These were excluded from our review given the focus in the UK in developing a national funding programme to support local objectives through research and innovation. Following a search for similar national place-based R&I programmes being developed around the world, we focused our attention on the developments in seven key countries: Germany, Sweden, Japan, United States, Canada, France, and Italy. This led to a detailed review of 18 programmes based on secondary publicly available information (i.e. programme websites, official documents including tender documents and calls for proposals, and academic papers and reports on specific programmes). We analysed these funding programmes to identify, where possible, key features including objectives and focus, scale and scope, approach, activities funded, instruments used, and investment criteria (in particular criteria capturing regional distinctiveness)

## 4.1 Approach and focus

Our first key set of observations are around the approach and focus of the different place-based R&I programmes. In particular we found that:

- The approaches reviewed range from those focused on **local value creation and capability building for local value capture** to those **investing in local areas for national value capture**
- Many approaches emphasised the importance of alignment with **local** innovation strategy or **national** technology/sectoral priorities
- Some programmes target the **strengthening of the system as a whole** (local sectoral/technological system or value chain) to identify opportunities and ensure all necessary & sufficient components are considered & incorporated into project
- Some countries have **developed differentiated programmes for different local economic contexts**
- Some programmes actively seek to **facilitate and encourage inter-regional linkages**, particularly where capabilities to unlock local value capture are located elsewhere
- Some programmes actively make **efforts to align national and regional programmes for funding** of other necessary activities that are not core focus of primary funder (e.g. aligned technology and workforce development). These requirements can be ‘hidden’ in national programmes overview documents

## 4.2 Variety of programme dimensions

Our review also revealed a range of dimensions along which place-based R&I funding programmes can be characterised (Figure 1). This highlights the variety of ways through which different national governments are attempting to support the delivery place-based objectives through investments in research and innovation.

**Figure 1** *Dimensions of national place-based research and innovation funding programmes*

Local value creation for local value capture	↔	Local value creation for national value capture
Generic regional underperformance in R&I	↔	Targeting particular regional R&I capabilities and industrial opportunities
Research & technology ‘push’	↔	Industry innovation needs ‘pull’
Building capabilities and critical mass	↔	Connecting capabilities and nurturing ‘ecosystem’
Limited to within region boundaries	↔	Facilitating connectedness to other regions
Regional government as administrator	↔	Regional government as applicant/ cost share partner
Single agency or ministry	↔	Multi-agency or multi-department
Single mechanism (e.g. research grants)	↔	Multi-mechanism (research, skills, infrastructure, network-building)

For example while some programmes were focused on investing in R&I in place to deliver benefits that were largely contained within that area (e.g. focusing on improving overall regional productivity), for others the value proposition was to invest to strengthen a place but also deliver significant national benefits (e.g. by supporting the emergence and development of leading national clusters). Some programmes were focused on raising the level of research and innovation capabilities in general, while others were much more targeted in developing regional R&I capabilities to pursue quite specific industrial opportunities. Further some programmes focused on building critical mass of R&I capabilities and assets in a region while others looked to better connect and nurture existing capabilities within the local innovation system.

### **4.3 Practical aspects of programme delivery**

Our third set of observations relate to more practical insights on programme delivery in other countries. In particular where we were able to identify insights into the funding allocation process, we found that funders placed importance emphasis on the following:

- The importance of project management capabilities, track record & systems
- Evidence of linking to related local and national strategies and priorities
- The capabilities of partners to collaborate
- Efforts to link range of necessary & sufficient activities (e.g. technology development with workforce development)

Perhaps importantly, there was no evidence in our review of funding agencies investing in areas with no underlying research and innovation capabilities to build on.

## **5 The development of modern place-based industrial and innovation policies**

The papers – particularly by McCann and by Kitson – chart the rise of modern, place-based industrial policies in the UK and identify particular challenges in how it is currently being implemented. McCann notes that considerations of place in economic growth started to change rapidly in the 1990s with different lines of research exploring particular dimensions. Common to all was the positioning of local knowledge spillovers, knowledge exchanges and knowledge diffusion processes within key geographical areas as being important for economic growth and national prosperity. In terms of the UK, the narrative on the role and importance of place in economic growth began to change in 2012. It became increasingly clear that improving UK productivity depended crucially on increasing the performance of cities and towns outside London and its environs. Further, during this time it became apparent that the prevailing local institutional set up was wholly inadequate to the challenges of addressing the regional imbalances facing the nation.

## 5.1 The need to broaden the focus place-based industrial innovation policies

A key conclusion from the suite of papers is the imperative for modern place-based industrial and innovation policies to broaden their scope. Three key areas are highlighted.

First, there is a need to move beyond technology development and the generation of new innovations to invest in developing capabilities in local innovation systems to absorb and diffuse innovations (Best and Bradley, 2019; Hughes and Ulrichsen, 2019; Kitson, 2019; McCann, 2019). Kitson notes how UK innovation policy has hitherto largely focused on investments in the former, with little emphasis on the latter. Such an approach, he argues, will do little for many lagging regions with low capacity to absorb innovation – this is known as the innovation paradox (Oughton et al., 2002). Indeed efforts to redistribute innovation generation capabilities more equitably across space may well lead to a weakening of the overall national capability in this area due to the importance of agglomeration effects. He also that, in some areas regional policy is much better focused on more mundane interventions such as improvements to transport and communications infrastructure, the upskilling of the workforce, etc.

Second, modern *place-based* industrial and innovation policies need to better account for the spatial distribution of the industrial value chains in which a local economy is linked into. This is crucial for addressing spatial imbalances, as it will shape where value and how can be captured – both organisationally and spatially – from additional investments in value creating activities (Hughes and Ulrichsen, 2019). Questions can then be asked in the design of place-based policies about what needs to be done to strengthen the potential of a local innovation system to capture greater value in a particular set of sectors and technologies. Hughes and Ulrichsen note that in some cases this may require links to be strengthened with other regions to access capabilities elsewhere rather than attempting to build them locally.

Third, place-based industrial and innovation policies need to help to develop not just the productive capabilities of a regions to create and capture value but also the related business models, skills, and wider enterprise capabilities that shape the ability of local industries to capture value. They also need to help develop the economic governance capabilities of places that are key to enabling local areas to invest strategically in the development of a more coordinated and coherent suite of underpinning developmental infrastructures. Additionally, policies also need to identify and address weaknesses in the local institutions that shape the behaviours and decisions of individuals and organisations in the region.

This need to broaden place-based industrial and innovation policy has important implications for its design.

Interventions should focus on activities in the translational space to fill and bridge any gaps between research and application (Best and Bradley, 2019; Hughes and Ulrichsen, 2019; McCann, 2019), between the co-evolving productive, enterprise and governance capabilities (Best and Bradley, 2019), and around innovation diffusion to ensure innovations flow effectively into and around the local innovation system (Hughes and Ulrichsen, 2019; Kitson, 2019; McCann, 2019). This may require developing new, or strengthening existing, intermediary institutions in a local economy.

The broadening of focus also brings into play a much richer set of contributions that universities can bring to bear to support the delivery of place-based industrial and innovation policy objectives.

These extend well beyond exploiting research outputs at what one might call the ‘scientific frontier’ to include more applied and collaborative research that targets the application of research developed locally or elsewhere to address the innovation challenges of local industries; associated technology transfer capabilities to facilitate the commercialisation of research outputs into applications; and the variety of wider knowledge exchange activities, educational capabilities, and physical assets that often exist within universities. This then has important implications for any ‘excellence’ criteria used in the allocation of funding. Hughes and Ulrichsen in particular challenge the use of traditional conceptualisations of research excellence (as defined by the Research Excellence Framework as against some standard international benchmark) in allocating place-based research and innovation funding. They suggest that other criteria may be more relevant for enabling the local innovation system to deliver improved local outcomes (such as increased productivity).

The broadening of focus of modern industrial innovation policies also widens the types of actors that need to be brought together to develop and implement any local approach. This needs to extend beyond universities and companies to include, among others, intermediate research and technology organisations (RTOs) such as Catapults, the further and technical education sector, and local economic development bodies.

## **5.2 The need to develop bottom-up, outcomes-driven policy approaches**

The development of place-based industrial and innovation policies needs to be outcomes driven, rather than input focused, with significant attention placed on understanding of the theory of change – the pathway from the status quo to achieving the desired outcomes and how policy interventions will facilitate this journey (McCann, 2019). In particular, McCann notes:

*“Each place-based policy action should have a specific and tailored theory of change underpinning it which sets out in detail, and in the specific local context in which the policy actions are intended to take place, the expected and likely mechanisms, sequencing and interactions between the policy inputs, outputs and outcomes. Importantly, this theory of change will need to include a discussion of the likely diffusion processes and dissemination mechanisms which will translate how any innovative breakthroughs or advances are to be enhancing for the wider local economy and the broader socio-economic environment.”*

Such an approach enables analyses to identify specific opportunities for the local research and industrial bases to work more effectively together to both create *and* capture significant additional value locally. Crucially, it would allow stakeholders to work backwards and identify the types of capabilities, enabling innovation conditions, and elements of the local institutional framework that need to be strengthened to deliver the desired outcomes. It also allows for a considered analysis of whether any additional capabilities or infrastructure needs to be developed locally or whether the local innovation system could achieve the desired outcomes more cost effectively by forming links with regions further afield.

This type of approach is, however, information intensive and needs to be built on granular and bottom-up evidence on viable opportunities and key challenges locally, and an understanding of what needs to be done to achieve the desired outcomes (Best and Bradley, 2019; Hughes and

Ulrichsen, 2019; McCann, 2019). As such how public funding is invested needs to be grounded in the local context. McCann argues that:

*“A core logic of modern place-based policies is therefore to provide the framework within which local actors can develop the experience and expertise of good bottom-up policy design and delivery. Indeed modern place-based approaches are fundamentally about building the local institutional capacity necessary to ensure that genuinely locally-tailored policies are designed with the explicit involvement of local communities.”*

A further challenge for developing and implementing outcomes-driven place-based approaches is that the public resources required to invest in the strengthening of local capabilities and infrastructure to achieve the desired local outcomes may be controlled by different national and regional funding agencies. Developing effective approaches will inevitably require coordinating and integrating funding from multiple public and private sources.

### **5.3 The need for a coherent national place-based policy framework**

A key role for national governments in developing modern place-based industrial innovation policies is to provide a coherent framework within which local actors can develop bespoke approaches. Such approaches should be outcomes driven and consider the variety of capabilities that need to be strengthened or built in order to deliver the desired objectives. These will inevitably extend beyond research and technological innovation generation to include areas such as workforce development, capital infrastructure, supply chain development, and support for the diffusion and absorption of innovations by local firms. This will then likely require the involvement of different funding agencies, government departments and local partners.

## **6 Implications for developing place-based research and innovation funding programmes**

The developments in modern place-based industrial innovation policy outlined above have significant implications for developing place-based approaches to funding research and innovation to deliver significant local economic outcomes. The suite of expert papers, evidence from international experiences, and the expert-policy roundtable led to a set of recommendations for the UK. In particular, place-based research and innovation funding programmes should:

- Be strongly focused on addressing specific local innovation needs and be developed bottom-up. There is no ‘one-size-fits-all’ approach
- Align distinctive innovation capabilities with distinctive local industrial value capture opportunities for spatial competitiveness
- Be based on an understanding of not just how they can create value but also capture it locally – this is what enables local impacts to be realised
- Move beyond the traditional focus on innovation generation to explicitly include innovation diffusion

- Rethink notions of ‘excellence’ that move beyond its traditional conceptualisation as ‘excellent science’ to include excellence in other areas critical for local value capture such as knowledge/technology translation and deployment into practice, capability building, and institution development
- Adopt ‘outcome-oriented thinking’ and be built on a clearly articulated ‘theory of change’ – an understanding of how investments in activities will translate into outputs, outcomes and, ultimately, impacts locally
- Enable linkages to be built with other regions nationally or internationally to access or co-develop capabilities that are necessary to strengthen the ability of the local area to capture value from investments in the local research and industrial bases
- Adopt a portfolio approach to investments and should encourage experimentation. Funding programmes must tolerate project failures. Learning from why some projects fail is just as important as understanding why projects succeed. Important to learning and development. Strong evaluation processes are therefore key

Any place-based research and innovation funding programme also needs to be seen as part of a wider system of local and nationally-focused policy interventions (e.g. in skills development, supply chain development, capital infrastructure investments). These need to be coordinated to ensure that the other capabilities necessary to develop, diffuse and deploy the innovation locally are being developed alongside the technology to ensure that value is not just created locally but captured locally.

The development and delivery of effective place-based research and innovation funding programmes requires strong local institutional capacity and governance. Compared to other countries, the evidence suggests this is significantly lacking in many areas of the UK. Building this local capacity and capability to deliver place-based interventions should be seen as a legitimate investment for central governments. This includes the ability of the local system to:

- Develop and access evidence to identify its innovation capabilities, understand the industrial structure and its role in wider value chains, and benchmark against other regions not just in the UK but also internationally
- Identify local value capture opportunities that align to local innovation capabilities
- Manage and deliver place-based strategies and funding programmes

## 7 Conclusions

This introductory paper brings together the key findings from the suite of papers from leading academic experts in different fields commissioned by CSTI to inform the following question: *“How can UKRI develop place-based funding programmes that invest in local research and innovation systems in order to develop local industrial capabilities in order to enable significantly greater local economic benefits?”* It integrates these findings with further insights from: (i) a review by CSTI of international experiences developing national funding programmes with significant research and innovation components to deliver local objectives; and (ii) a roundtable discussion between the academic experts developing the papers and the key policy stakeholders from UKRI and BEIS involved in approaches to developing place-based research and innovation funding.

Developing place-based research and innovation funding programmes to deliver local economic outcomes as part of an industrial strategy requires a focus on investing in building the capabilities of the local research and industrial bases to not just create value but also to capture and anchor it locally. The nature of these investments will depend crucially on the structure, capabilities and dynamics of the local industrial and research bases, and the opportunities that could be unlocked by strengthening them. As such there can be no 'one-size-fits-all' approach.

In the UK, this type of funding programme is new and represents a departure from the traditional focus of research and innovation funding agencies on the place-blind funding of excellence. The suite of papers raise a number of key issues for developing modern place-based approaches to industrial innovation policy with implications for the design of these programmes. This includes the need to:

- **Ensure a broad focus to include not just generation of new innovations but also diffusion of innovations**, as well as the development of the necessary capabilities, supply chains, innovation and entrepreneurial infrastructure, networks and culture in local economies to enable greater local value capture
- **Support the development of the economic governance capabilities of regions** to ensure that areas are able to develop effective local approaches and invest in the underpinning innovation infrastructures and institutions in a strategic, coordinated and coherent way
- **Enable links to form with other regions to access or co-develop complementary capabilities** necessary to drive local value capture from core investments in R&D, where developing them locally is either not feasible or good value for money
- **Be developed bottom-up and be based on a strong understanding of the nature of production of goods and services in a region** and its links into wider industrial value chains, enabling probing questions to be asked about where viable opportunities exist and what needs to be done to not just create value but capture it locally
- **Be outcomes-driven rather than inputs-focused**, with realistic objectives and ambitions given project scales, and effort made in understanding and setting out clearly the theory of change – the pathway from the status quo to achieving the desired outcomes and how planned investments will facilitate this journey
- **Rethink notions of excellence**, to move beyond its traditional conceptualisation as 'excellent science' to include excellence in other areas critical for local value capture such as knowledge/technology translation and deployment into practice, capability building, and institution development
- **Be set within a coherent national policy framework** within which local approaches can be developed and which enable local areas to invest in a coherent package of investments to ensure that value being created can be captured locally.

Lastly, place-based research and innovation funding programmes need to adopt a portfolio approach to investments and should encourage experimentation. Funding programmes must tolerate project failures, and learning why some projects fail is just as important as understanding why projects succeed. Programmes must be adaptable and respond to lessons learned from the initial waves of projects.



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