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EMERGENCE AND INCLUSIVITY OF REGIONAL INNOVATION SYSTEMS IN THE (SEMI)PERIPHERY

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EXECUTIVE SUMMARY

This study revisits regional innovation systems (RIS) in semi-peripheral regions of the UK from an inclusivity perspective, examining barriers to dense innovation systems in the North of England, outside the UK's core innovation-intensive regions in the Golden Triangle in the South of England, the inclusivity of existing RIS, and the regional contexts and systems that support and sustain inclusive innovations. The research is based on 50 semi-structured interviews with actors who have diverse and direct experiences of RIS in North West and North East England.

Research Questions and Key Findings

1. What constrains the emergence and development of RIS in semi-peripheral regions of the UK?

RIS emerge as the outcome of complex, path-dependent processes. Innovators in the North of England with less well-developed RIS face greater cost and risk during value creation compared to 'sticky places' with more mature and denser RIS. This path-dependence also means that the spatial distribution of economic activity does not self-correct towards a hypothetical equilibrium after major global shocks or transitions. Even though places in the North of England have cost of living advantages that are well recognised by our participants, uncertainties remain with respect to the development of dense RIS in the North East and North West, and it is a long process corresponding in some accounts to multiple generations of economic inactivity. Narrow definitions of innovation compound these challenges by disproportionately channelling funding toward core regions, whereas broader definitions better reflect how innovation is practised in semi-peripheral areas.

Analysing our participants' contributions in the light of existing literature, we conceptualise stickiness and slipperiness of places for innovative economic activity in two main elements: structural forces and agentic potential. Structural forces include exposure to global economic mobility that does not self-correct; constrained access to capital, particularly a "missing middle" gap between proof-of-concept and scale-up; limited reachable scale, partly driven by the distance between the North of England and core innovative regions, and partly by inequalities between and within regions; and policy distance, whereby decisions are made away from where innovation occurs and support often fails to match local trajectories. Agentic potential is shaped by place identity and confidence, where industrial legacy coexists with diminished confidence limiting local capability; brain drain, driven by slow growth in reachable scale and limited career visibility; uneven absorptive capacity, impacting upon value creation and retention; and persistent skills gaps in commercialisation and scaling despite strong technical capabilities.

2. How inclusive are existing RIS in creating opportunities, enhancing capabilities, and improving outcomes in the local economy?

Inclusivity does not emerge as an issue that is fully considered and acted upon by our participants with the exception of local authorities and inclusive innovators – innovators who develop inclusive innovations. While private sector participants support inclusivity, and some excellent projects and initiatives take place, most participants place greater importance of the survival of businesses. In this regard, while the expectation is that growing businesses can create jobs and generate general prosperity in Northern regions, the existing RIS does not automatically or actively generate inclusion. Building on this finding, we call for further investigation of whether inclusion of wider groups and places in innovative economic activities, skills and networks can help increase reachable scale for RIS and innovative businesses in Northern regions. Beyond ethical considerations, such a link would imply inclusion is a strategic priority for RIS in semi-peripheral regions.

3. What characterises RIS that support frugal and inclusive innovations, and how can place-based policies strengthen these systems?

The cases of inclusive innovations that we studied were organised around different models. We identified three categories: problem-led/place-based, anchor institution-led, and innovative funding schemes. Inclusive innovations do not appear to have separate innovation systems that support them, although this may change in time. Instead, they are supported by existing RIS and philanthropic systems with some adaptations to better recognise inclusivity. Our findings, that remain at an exploratory level, indicate that the mismatch between conventional RIS and aims of inclusive innovation may result in the precariousness of inclusive innovation. Broadened definitions of innovation and success criteria, and specific schemes that support inclusive innovations in a stable, long-term pattern can strengthen the Northern regions' potential in inclusive innovation.

Policy Recommendations

These findings suggest several areas where policy could usefully respond, including: cultivating emerging RIS by balancing national and regional priorities; addressing structural constraints through investment and co-designed policy; adopting broader definitions of innovation for funding eligibility; responding promptly to global shocks that disproportionately affect some regions; closing capital gaps through varied funding mechanisms and simplified administration; integrating spatial and societal inequalities into place-based policy; increasing regional flexibility through devolved, multi-year approaches; building place confidence and career visibility; treating absorptive capacity as a distinct policy target; targeting skills investment at commercialisation and scaling; and embedding inclusion within broadened definitions of innovation and success.

Summary of Findings and Policy Recommendations

Table 1: Summary of findings and policy recommendations

Force / Theme	Findings	Policy Recommendation
Complexity	1. RIS emerge as complex, path-dependent phenomena. Interacting structural forces and agentic potential in regions lead to varying stickiness, proximity and agglomeration outcomes for regions and different cost and risk structures for innovators.	Cultivate emerging RIS by balancing national and regional priorities, and recognise incremental and locally-novel forms of innovation.
Historicity	2. Development of dense RIS can take a long time, particularly in semi-peripheral regions that are relatively slippery. While Northern England regions (particularly the North West) are accumulating strengths, they still have vulnerabilities.	Consider the success of RIS within their historical process, and align the time span of policy objectives and actions with realistic RIS growth processes.
Definitions of innovation	3. Narrow definitions of innovation priorities disproportionately divert funding to the core, where R&D and technology-based firms are more prevalent, while broader definitions better reflect how innovation is practised in semi-peripheral regions.	Adopt broader definitions of innovation and widen funding eligibility to reflect and cultivate local strengths.
Structural forces and agentic potential	4. The complexity of the development of stickiness as a process can be better understood by distinguishing between structural and agency-based dynamics . These are both path-dependent and inter-dependent.	Address the main structural factors affecting semi-peripheral economies and innovation (with investment, procurement, re-location of public bodies). Engage with local actors to empower them and co-design policy.
Structural Forces	5. Global Mobility of Economic Activity: Places in the (semi)periphery are more exposed to global economic mobility. This exposure is structural and path-dependent, so shocks do not self-correct.	Respond to global shocks promptly, supporting the full range of local capabilities, incremental and inclusive innovation, and the foundational economy in disproportionately affected places.
	6. Access to Capital: Access to capital in the (semi)periphery is constrained by a 'missing middle' gap between proof-of-concept and scale-up, a thin capital market, exclusion of certain organisational forms, and cash-flow-challenging grant design.	Increase capital availability across the innovation journey, close the 'missing middle' with varied funding options, and invest in innovation assets that cut proof-of-concept-to-scaling costs. Simplify funding applications and administration.

Force / Theme	Findings	Policy Recommendation
	7. Reachable Scale: Four forms of spatial inequality constrain semi-peripheral regions' reachable scale: between regions, within regions, connectivity gaps, and societal inequalities limiting participation.	Integrate different forms of inequalities into place-based policy to expand the effective scale innovators in semi-peripheral regions can reach.
	8. Policy Distance: Policy distance operates across spatial, temporal, and institutional dimensions: decisions are made away from where innovation occurs, policy cycles are short and unstable, and support often fails to reflect local capabilities and trajectories.	Combine national schemes with regional flexibility, letting eligibility, timelines, and delivery reflect local context. Match devolution with proportionate fiscal transfer. Commit to multi-year strategies that reduce policy churn.
Agentic Potential	9. Place Identity and Confidence: Place identity shapes innovation capacity: a legacy of industrial achievement coexists with diminished confidence and legitimacy, limiting the mobilisation of local capability.	Treat place identity and confidence as preconditions for mobilising local capability, building through greater visibility of local achievements, policy support and investment in skills and participation.
	10. Brain Drain in the (semi)periphery stems from slow growth in reachable scale and limited visibility of local careers, compounded by employers' reluctance to invest in entry-level training due to cost pressures.	Lower the cost barrier to entry-level hiring and training while raising the visibility of local careers through career-pathway programmes with sector-wide and quadruple-helix collaborations.
	11. Absorptive Capacity is critical but unevenly distributed: firms' ability to exploit opportunity depends on internal resources plus access to external capabilities, networks, and knowledge exchange, creating regional lock-in.	Treat absorptive capacity as a distinct policy target, investing in sustained networks, knowledge exchange, and embedded business support. Supplement absorptive capacity through stable and visible business support.
	12. Skills Gaps can coexist with local strengths: both regions show a commercialisation and scaling gap, where technical capability outpaces the organisational and commercial skills needed to grow a business.	Target skills investment at commercialisation and scaling capability, alongside continued investment in technical and research skills.
Inclusivity of RIS	13. Inclusivity of existing RIS: Existing RIS support the idea of shared prosperity but don't generate inclusion automatically: unequal	Raise awareness of inclusion as both a fairness issue and a driver of reachable scale, and make it a deliberate requirement of policy and funding.

Force / Theme	Findings	Policy Recommendation
	access to skills, networks, and decision-making reinforces path-dependent advantage and exclusion.	
Inclusive Innovation	14. Inclusive Innovations take three complementary forms — problem-led/place-based, anchor-institution-led, and innovative funding — repurposing existing RIS to broaden participation, and prioritise inclusion alongside economic outcomes.	Include inclusivity within broadened definitions of innovation and success criteria. Establish new, sustained initiatives to support inclusive innovation.

1. Introduction and Literature Review

Since the Great Recession, widening inequalities and regional disparities have increasingly captured policy and academic attention, challenging the neoclassical assumption that the invisible hand of market forces would naturally correct economic imbalances and return economies towards equilibrium following major shocks (Dilaver, 2026). In the Global North, places experiencing long-term economic stagnation, often due to deindustrialisation, declining employment bases, and weakened economic connections, have prompted the notion of ‘left behind places’ (Pike et al., 2024). Rather than experiencing automatic recovery, or return to a hypothetically natural equilibrium, many regions have entered trajectories of cumulative decline, shaped by uneven investment, institutional capacity, and economic restructuring. Recent critical literature argues that the systematic exclusion of ‘places that don’t matter’ from decision-making and investment has deepened divides, intensified marginalisation, and created political cleavages exploited by populist actors (Rodríguez-Pose, 2018).

Industrial clusters and regional innovation systems (RIS) have long attracted attention from policymakers and scholars seeking to understand how places generate innovation and competitiveness. These approaches have informed efforts to replicate the success of high-performing regions through agglomeration-based development. Concern for peripheral and semi-peripheral places does not yet signal a shift away from density-driven urban development or the dominance of ‘star cities’, but rather highlights a dualism (Fai and Tomlinson, 2023). On one hand, widening disparities have prompted initiatives such as the UK’s Levelling Up White Paper and the EU’s Cohesion Policy and Just Transition Fund, framing geographic inequality as requiring place-based responses to support fairer green and digital transitions. On the other hand, large cities remain central to growth strategies, reflecting the expectation that agglomeration drives innovation and prosperity. In the UK, the anticipated “trickle-down” of prosperity from high earners, frontier firms, and star cities has largely failed to materialise, producing an economy of hubs without spokes (Haldane, 2018). Despite this, London’s economic success continues to reinforce the assumption that major cities are the primary engines of growth.

RIS studies, predominantly focused on high-income regions and successful clusters such as Silicon Valley and Cambridge, provide limited insight into RIS in (semi)peripheral regions such as the UK’s northern “powerhouse”, where growth potential, inequality, and the need for transformative change are substantial (Dilaver et al., 2015, 2023; Pinheiro et al., 2022; Boschma, 2025). In these regional contexts, key RIS components, including diverse organisational capabilities, knowledge networks, and access to finance, may be weak or absent, raising questions about whether RIS exist at all (Asheim et al., 2015; Uyarra and Charles, 2024).

The UK faces persistent challenges of growth and productivity outside the South East, both between lagging regions and within them. A key issue is the concentration of innovation capability and activity in core regions and a limited number of nodes elsewhere. This raises

questions about whether innovation-led industrial policy can effectively reach peripheral places or stimulate development beyond existing centres.

The periphery is not a homogeneous set of places. Rather, it includes diverse locations with different characteristics, levels of urbanisation, industrial histories, resource bases, innovation capabilities, cluster engagement, and absorptive capacities.

- » **Rural areas with small towns and villages** – including both relatively prosperous rural areas near urban cores that may nevertheless lack innovation capacity, and more sparsely populated or upland areas characterised by isolation and poor accessibility.
- » **Post-industrial towns (and small cities)** – places that grew around core industries that have since declined or disappeared. Many face challenges including poor transport connectivity, population decline, and skills shortages (e.g. Workington), although larger university towns such as Lancaster or Durham may benefit from greater dynamism.
- » **Non-core cities** – while core cities often benefit from multiple universities and regional innovation strategies, other relatively large cities and towns may share characteristics with post-industrial places. These may have only one university, limited research capacity, and weaker innovation capabilities (e.g. Sunderland, Middlesbrough, Preston, or Blackburn).

Recent critiques further argue that when narrowly defined as high-tech, capital-intensive, and corporate-led, innovation does not necessarily deliver inclusive outcomes (Rodríguez-Pose, 2018; OECD, 2020; Breznitz, 2021; Lee, 2024). Instead, outcomes may depend on institutional quality, innovation assets, and structures of economic control, and so, addressing spatial disparities requires place-based approaches that build local capabilities. This raises a critical question: can place-based policies harness agglomeration dynamics at smaller scales, or do peripheral regions require new understandings of innovation systems where RIS have not emerged or remain overlooked?

Uneven effects of innovation strategies in regions outside the core are driven by more than the location of individual infrastructure investments. Regional innovation strategies usually have a sectoral or cluster focus, reinforced in later periods of European funding by smart specialisation strategies required for ERDF assistance (Foray, 2015). These sector choices are intended to represent growth opportunities, but often prioritise established high-tech fields (digital, biotechnology, green energy), regardless of their existing strength in a region, alongside broader and less clearly defined categories such as advanced manufacturing. These choices may support small, science-based firms such as university spin-offs in biotechnology, often located near major universities, while providing less support for larger and more traditional industries in peripheral locations. This dilemma is exacerbated by national-level focus on selected high-tech sectors that may not be well represented in many regions.

In the UK, despite considerable evidence of weak economic and innovation performance in peripheral regions, regional policy has done little to alter these patterns, with innovation receiving limited attention over time. Periods of stronger regional intervention, such as under the RDAs, have been offset by spatially blind national policies that favoured existing concentrations of innovation and resources (Charles and Uyarra, 2026). In the North of England, innovation and entrepreneurial ecosystems have evolved through successive phases of EU-supported local action in the 1990s, RDA strategies in the 2000s, reduced public support and increased private action in the 2010s, and renewed emphasis on urban cores in the 2020s (Charles et al., forthcoming).

In this study, we revisit and interrogate RIS from an inclusivity perspective. We examine the social and economic impacts of RIS through three complementary angles. First, we problematise the concentration of innovation in the UK's 'Golden Triangle' (London, Oxford and Cambridge) and explore barriers to the emergence of dense innovation systems in less privileged towns and rural areas (Bosworth, 2023) in the North East and North West England. Second, we examine the existing regional innovation systems in these regions in terms of their inclusivity, both spatially and in outcomes, capabilities, and opportunities. Third, we examine inclusive innovations (Lee, 2023; Morales et al., 2025) that are often excluded from conventional definitions and metrics, exploring regional contexts that sustain them. Recognising their lower visibility and community-based, alternative narratives, the study adopts a broad, interdisciplinary approach encompassing sociological, as well as structural and institutional dimensions of innovation systems.

The project addresses the following research questions:

1. What constrains the emergence and development of RIS in semi-peripheral regions of the UK?
2. How inclusive are existing RIS in creating opportunities, enhancing capabilities, and improving outcomes in the local economy?
3. What characterises RIS that support frugal and inclusive innovations, and how can place-based policies strengthen these systems?

Within the RIS literature seeking to understand how regional economies generate innovation and competitiveness, we draw particularly on Markusen's (1996) concept of "sticky places in slippery space", which is relevant to our fieldwork findings. Markusen challenges the assumption that globalisation renders geography irrelevant, arguing that certain "sticky" places continue to anchor economic activity despite increasingly mobile resources. For her, "[s]tickiness connotes both ability to attract as well as to keep, like fly tape" (p. 294). She identifies specialised labour markets, tacit knowledge exchange, supplier networks, and institutional infrastructures as mechanisms that generate localised, non-tradable advantages. Conversely, "slippery space" refers to contexts where these mechanisms are weak or absent, enabling firms and capital to relocate more easily. Table 1 summarises the factors associated with stickiness in her original framework. Markusen also identifies typologies of sticky places

including Marshallian industrial districts characterised by dense networks of small, locally-owned firms, hub-and-spoke districts anchored by one or more dominant large firms around which suppliers and related businesses cluster, satellite industrial platforms comprising branch operations of externally-owned firms with limited local embeddedness, and state-anchored districts, where a public sector entity such as a university, military base, or government facility serves as the core economic driver.

Table 2: Authors' interpretation of Markusen's factors of stickiness

Factors that increase stickiness	Factors that decrease stickiness (increase slipperiness)
Patient capital, local finance willing to take long-term risks in local firms	Absence of patient capital, finance and investment decisions made externally
Dense local embeddedness, firms/institutions embedded in local networks and long-term local contracts	External orientation, key relationships and investment decisions lie outside the district (parent companies, external markets)
Agglomeration-generating anchors, anchor firms/institutions large enough to attract sustained in-migration of skilled labour	Portable anchor facilities, anchor facilities that are footloose or easily replicated elsewhere (a defining risk for satellite platforms)
Engaged local government, local government actively promoting and regulating core industries	"Sycophantic" local government, local government reduced to a booster role, dependent on placating an external decision-maker
Locally embedded public investment, regionally embedded government facilities (universities, state capitals)	Dependence on externally funded facilities, reliance on nationally funded facilities whose decisions are made externally and vulnerable to policy shifts
Distinctive local culture, development of a shared local identity and industrial expertise	Weak local cultural identity, minimal local cultural bonds, common in outward-looking satellite platforms

In the North of England, alongside changing policy support mentioned above, regional strategies have sought to address the mobility of productive investment by attracting anchor firms Markusen refers to in her analysis. These have included satellite platforms built around multiple FDI plants, hub-and-spoke models centred on major investors such as Nissan, and, following multinational withdrawal, bottom-up attempts to foster Marshallian industrial districts through entrepreneurship support. While elements of three typologies persist, often opportunistically, investment in cities has remained the most consistent feature, centred on research-intensive universities and urban innovation infrastructure. The wider impact of innovation districts, technology incubators, and science parks beyond regional cores remains limited.

The inclusiveness of regional innovation strategies partly reflects the degree of selectivity in sector choices (high-tech versus low- or medium-tech) and the spatial distribution of these industries. Because these strategies are often selective and focused on export-oriented manufacturing, their direct employment effects may be limited, as manufacturing accounts for

only 14–15% of employment in the North West and North East. More recently, RIS have increasingly focused on digital service jobs; however, this may simply replace a manufacturing target with a service-sector equivalent, one often associated with higher shares of middle-class urban employment, rather than a greater emphasis on inclusiveness. This creates a clear tension between the desire to concentrate resources for impact, a central message of smart specialisation and cluster policy, and the desire to promote inclusiveness by reaching places beyond the usual high-tech regions.

One response is to treat inclusive innovation - innovation based on the needs and capabilities of people not ordinarily involved in regional innovation systems - as a target in its own right. Inclusive innovation remains difficult to define and translate into policy. It is often associated with the foundational economy. Furthermore, even when clearly defined, such an approach presents challenges. First, places targeted for inclusive innovation often have limited capacity for innovation, knowledge exploitation, and scaling new activities. These places may require support even for social enterprises, which are unlikely to scale rapidly without access to entrepreneurial ecosystems, finance, and managerial capabilities. This support differs from that required by university technology spin-offs, creating challenges for dominant policy models. Second, growth based on foundational economy inclusive innovation may generate local development, but disparities with richer regions may persist because foundational economies tend to have lower value-added activities and skill levels than regions dominated by technology industries and finance. Does inclusive innovation just reinforce existing divides?

UKRI defines “an ‘inclusive innovation’ as one that centres equality, diversity and inclusion in the design and development of a product, process, or service. More importantly, the innovation must address a challenge.”¹ This differentiates an inclusive innovation from a broader understanding of innovation which seeks to meet the widest range of needs, and instead focuses on an innovation which meets the needs of a particular marginalised group. This is perhaps the narrowest definition in that it does not explicitly require the active engagement of marginalised groups in the process, nor does it focus on making products that are suitable for all, including the marginalised. The Connected Places Catapult has a broader definition: “Developing new ideas, services, products and processes in a way that benefits all of society and the rest of the planet – including people and places that are often ignored and left behind.”²

Does the inclusive nature of the innovation apply to the process of innovation or to the output? So, an innovative product can be inclusive if it supports the needs of a group normally excluded, such as the inclusion of automatic captioning in Teams and Zoom to aid those with hearing problems, although the process of development may or may not involve those that are likely to benefit.

¹ <https://iuk-business-connect.org.uk/programme/inclusive-innovation/>

² <https://cp.catapult.org.uk/inclusiveinnovation/what-is-inclusive-innovation/>

Box 1: Conceptual varieties of inclusive innovation

Inclusive innovation in regional innovation strategies could, therefore, be defined in a number of different ways:

- a. Specific targeting of products and services that meet the needs of excluded groups within the prioritisation (e.g. a focus on ageing)
 - Supporting sectors that address wider needs of community
 - Working with excluded groups to predefine needs and products
- b. Incorporation of responsible research and innovation principles into individual projects funded by innovation policy
 - Encouraging firms to recruit a diverse workforce
 - Engaging with the public in product and service development
- c. Emphasis on community enterprise and excluded groups as innovators, regardless of the sector of performance
 - Supporting existing social enterprises to be more innovative
 - Encouraging entrepreneurship in the social enterprise sector

Alternatively, an inclusive innovation process implies that a wider range of social groups are involved in the process, either through some form of consultation on needs, or through the direct participation in product development. The output of such a process may be an inclusive product, although it may not. A second concern is whether the inclusive innovation process is led by a conventional corporate body, perhaps bringing in representatives of other groups into the process, or whether it is a form of social innovation led by the excluded groups, with or without the input of the conventional corporate sector.

1.2 About our study

To inform this research, we conducted 50 semi-structured interviews with stakeholders across the North East and North West of England. This included 30 interviews in the North East and 20 interviews in the North West. In addition, we conducted one additional interview with a facilitator active across both regions and one interview with an innovative company based outside the two regions. In total we had 52 interviews.

Interviewees represented a broad cross-section of the regional innovation ecosystem, including 15 innovative companies, 14 public bodies, 13 innovation facilitators, five social enterprises and four finance organisations. This mix provided perspectives from businesses developing and adopting innovation, organisations supporting innovation ecosystems, public sector partners, mission-driven enterprises, and investors and finance providers.

Participants were recruited primarily through direct email invitations and LinkedIn messages. Potential interviewees were identified using a combination of publicly available datasets and documentary analysis. Innovative companies were identified through the Innovate UK award holders database and the FAME company dataset. Organisations supporting innovation—

including Catapult centres, research and innovation centres, science and technology parks, local authorities, and university-supported initiatives such as incubators and accelerators—were identified through desk-based research of organisational websites, reports and other relevant documentation.

A snowball sampling approach was also used, with interviewees invited to recommend additional individuals or organisations with relevant expertise and experience. This helped broaden the range of perspectives captured and identify stakeholders who may not have been identified through the initial desk-based search. While the sample was purposively selected rather than statistically representative, it was designed to capture a diverse range of organisations and viewpoints from across the two regional innovation ecosystems.

2. The Two Regions at a Glance

The North East and North West share several structural characteristics that differentiate them from many other English regions, including their industrial legacies, rural–urban inequalities and persistent socioeconomic disparities. Both regions retain relatively strong manufacturing bases compared with many English regions, reflecting longstanding industrial specialisms alongside increasingly diversified economies. They also experience substantial inequalities between places and report relatively low levels of self-reported personal wellbeing, including lower average life satisfaction, happiness and feelings that life is worthwhile, alongside comparatively higher anxiety than many other regions (ONS, 2023).

The North East combines extensive rural and sparsely populated areas with a population concentrated in major urban settlements, particularly the Tyneside conurbation. In the North West, remote rural areas, particularly in Cumbria and along the Cumbrian coast, contrast sharply with densely populated urban areas such as Greater Manchester and Liverpool City Region in terms of accessibility and connectivity. Together, these regions demonstrate how regional averages can mask significant rural accessibility inequalities. While urban centres benefit from concentrated infrastructure, transport networks and services, many rural communities experience poorer accessibility, including challenges relating to broadband availability, public transport provision, rail access and proximity to major employment centres.

These conditions matter because they shape the wider environment in which innovation takes place. Both regions have research-intensive universities as well as genuine research, and innovation assets aligning with industrial applications including, to name a few, the North East's Offshore Renewable Energy Catapult and Centre for Process Innovation, science parks such as NETPark and Newcastle Helix, offshore energy cluster, and battery/EV supply chain, and the North West's Medicines Discovery and Satellite Applications Catapults, science parks at Alderley Park and Sci-Tech Daresbury, Liverpool's Knowledge Quarter, life-sciences cluster, civil nuclear cluster, and aerospace manufacturing base. However, converting these assets

into business R&D activity is a documented weakness in both regions. With notable exceptions such as Cheshire and pockets of intensive activity elsewhere, across the two regions research and innovation assets have not generally converted into commensurate business R&D activity. Both regions face innovation challenges compared with England's strongest-performing areas. The North East has made progress in developing an innovation ecosystem, but challenges remain in converting innovation capability into higher levels of R&D investment, IP creation and productivity growth. The North West benefits from stronger innovation assets but continues to lag leading regions in translating these strengths into comparable economic outcomes.

Despite structural similarities, two regions differ significantly in the scale and nature of these challenges. The North West is nearly three times the North East's population (7.6 million versus 2.7 million) and generates over three times its economic output. North West has a GDP per head (£35,635) around 90% of the UK average compared with the North East's £28,583, the lowest of any UK region, at just 72.5% of the UK average. Similarly, the labour market in the North West as a whole yields comparable outcomes or those that are slightly below the national figures. The employment rate of 74.4%, unemployment at 5.0%, and economic inactivity at 21.6% are each only fractions of a point behind the UK averages of 75.0%, 4.9%, and 21.0%. North West is the second-most densely populated region after London and has the lowest overall rural population share of any English region outside London despite having large rural areas in further North.

The North East, by contrast, faces more serious challenges. It has the lowest employment rate of any English region at 71.1%, the highest unemployment rate of the two at 5.4%, and the highest economic inactivity rate in England at 25.1%, over four points above the national average. Rather than a short-term cyclical downturn, these figures reflect a persistent structural gap driven significantly by long-term health conditions. This gap with national figures extends to household income, employment and the share of jobs in higher-skilled occupations. While the North West consistently sits closer to the national picture, the North East trails behind. North West's distinctiveness compared to the rest of the UK shows up in differences within the region.

Relatedly, while comparing the two Northern England regions, it is important to underline that neither region is a single, uniform economy. The North East splits into Tyneside's service and knowledge economy, Teesside's chemicals and process-industry base, and rural Northumberland; the North West ranges from Greater Manchester's large, diversified economy to Liverpool's port and life-sciences cluster, Cheshire's more affluent commuter belt, and Cumbria's sparse rural one. In this respect, although when considered as a whole North West outperforms North East in many indicators, rather than one region simply outperforming the other throughout, there are places with varying outcomes within both regions. In this respect, broadly similar structural challenges affect both regions but play out at different scales and with different strengths. For example, the Liverpool City region faces similar labour market challenges such as high economic inactivity and long-term sickness like the North East.

The North West benefits from a much larger and more diverse economy and better labour market outcomes, but its recent growth has been uneven, and progress in European innovation measures has been slower. The region recorded the steepest regional R&D fall in 2024 (-17%), driven almost entirely by a sharp drop in Cheshire, which is otherwise one of the most R&D-intensive sub-regions in the UK (4.45% of GDP); and it saw the largest fall in male healthy life expectancy of any English region since the pre-pandemic period, despite average life expectancy being marginally higher than the North East's. The North East, by contrast, is experiencing a period of stronger economic momentum. Recent data suggest that the region had above-average GDP growth and signs of improvement in labour market participation and employment. However, these gains sit on top of long-standing structural problems built up over decades. The region has the smallest business R&D spend of any UK region on every measure (share of GDP, spend per head, and spend per researcher) despite genuine research strengths (highly-cited publications, the highest UKRI investment as a share of GDP of any UK region). This combination of strong public research assets alongside a weak private R&D base emerges as the region's distinctive innovation landscape. The North East, therefore, faces a stronger challenge of building economic scale and converting research capacity into a broader business innovation base, while the North West faces the challenge of making better use of its greater scale and existing economic assets to generate more sustained and widespread innovation.

Regional innovation indicators

Table 3: Selected regional indicators

Indicator	North East	North West	UK / England benchmark	Source
Geographical area	8,580 km ² small, larger only than London	14,110 km ² mid-size region		ONS, Standard Area Measurements for the Regions 2024
Population	2.7 million	7.7 million		ONS, 2024
GDP per head	£28,583 (72.5% of UK avg) lowest of UK regions & nations	£35,635 (90.4% of UK avg) 4th highest of 9 English regions	UK avg £39,403	ONS, Regional GDP 1998-2023, Table 1 (Apr 2025)
Manufacturing share of GVA	14.1% (+5.2pp)	13.0% (+4.1pp)	England 8.9%	ONS regional GVA by industry (Apr 2025, 2023 data, Table 6)
Employment rate	71.1% - lowest of 9 English regions	74.4% - close to UK and England averages	UK 75.0%, England 75.4%	ONS Labour Force Survey, Feb-Apr 2026
Economic inactivity rate	25.1% - highest of any English region	21.6% - close to UK and England averages	UK 21.0%, England 20.5%	ONS Labour Force Survey, Feb-Apr 2026
Working-age, no qualifications	8.5% - highest of any English region	6.7% - close to average	England 6.2%	ONS Annual Population Survey, 2023
Life expectancy at birth (M/F)	77.7/81.6	77.9/ 81.9	England 79.5/83.3	ONS life expectancy estimates, 2022-2024
Healthy life expectancy (M/F)	57.0 / 56.9 yrs Lowest of any English region	Also among the 3 lowest English regions	England higher throughout	ONS life expectancy estimates, 2022-2024
Population living rurally	17.8%	10% — lowest of any English region outside London	England excluding London 20.0%	ONS 2021 Rural Urban Classification; Census 2021
Public transport connectivity (DfT, 0-100)	65.72 — 3rd of 10 areas	68.28 — 2nd of 10 areas	Other regions average 61.2	DfT public transport connectivity metric, 2025

Regional innovation indicators

Table 4: Selected innovation indicators

Indicator	North East	North West	UK / England benchmark	Source
UKRI investment (% of local GVA)	0.62% - highest of any UK region	0.45% - close to average	England 0.48%, UK 0.45%	UKRI funding data, 2023-24 (Figure 5 and Table 6)
Business R&D spend (£m 2023)	761	5,610	England 48,860, UK 53,195	ONS, Business enterprise R&D (BERD)
GDP (£m 2023)	77,498	270,833	England 2,329,630, UK 2,720,029	ONS Regional gross domestic product (GDP), 1998-2023
Business R&D expenditure as % of GDP	0.98%	2.07%	England 2.10%, UK 1.96%	Derived from data
R&D employment (thousands FTE, 2023)	11	40	England 462 UK 517	ONS, BERD, UK: 2024
R&D spend per FTE researcher (2023)	£69,182 – among the lowest UK regions	£140,250- above UK average	England, £105,758 UK £102,892	Derived from data
Recent R&D trend	Falling: -6% (2022-24)	Sharp fall: -17% in 2024, one of the largest regional falls	—	ONS, BERD, UK: 2024
R&D tax credit	1,335 claims, £115m 2.8% of UK claims 1.5% of UK value	4,290 claims, £490m 9.1% of UK claims 6.5% of UK value	46,950 claims £7.6 bn	HMRC R&D tax credits statistics
Patent Box tax relief	around 40 claimants, £12m total tax relief	around 170 claimants, £81m	1,650 claimants £1.977 bn	HMRC Patent Box statistics, 2023-24
Regional Innovation Scoreboard rank	65th of 241 (Strong Innovator)	58th of 241 (Strong Innovator+)	London 3 rd , South East 7th	European Commission Regional Innovation Scoreboard 2025

Table 4: Local authorities in the North West and North East ranked by GDP per capita (2023)

Local Authorities in North West ranked according to GDP per capita

Local Authority	GDP per capita (2023)	Local Authority	GDP per capita (2023)
Tameside	£20,205	Lancaster	£30,570
St. Helens	£20,652	Knowsley	£32,499
Wyre	£21,364	West Lancashire	£33,703
Rossendale	£21,634	Stockport	£34,446
Sefton	£22,550	Westmorland and Furness	£37,367
Wigan	£22,869	Ribble Valley	£38,033
Oldham	£22,948	Preston	£39,503
Rochdale	£23,651	Liverpool	£40,392
Wirral	£23,944	Salford	£41,269
Pendle	£24,124	Cheshire West and Chester	£43,099
Hyndburn	£24,524	Fylde	£43,445
Bury	£25,102	Halton	£43,822
Blackpool	£26,598	Cheshire East	£45,078
Chorley	£27,305	South Ribble	£45,918
Bolton	£28,044	Warrington	£54,025
Burnley	£28,072	Trafford	£55,182
Cumberland	£29,664	Manchester	£65,591
Blackburn with Darwen	£29,985		

Local Authorities in North East ranked according to GDP per capita

Local Authority	GDP per capita (2023)
South Tyneside	£17,914
Redcar and Cleveland	£18,571
Hartlepool	£20,154
Northumberland	£23,339
County Durham	£25,821
Middlesbrough	£28,066
Gateshead	£28,679
Darlington	£30,420
North Tyneside	£31,461
Sunderland	£31,839
Stockton-on-Tees	£33,314
Newcastle upon Tyne	£42,482

3. Qualitative Findings: Regional Strengths and Structural Inequalities

Research Question 1: What constrains the emergence and development of RIS in (semi)peripheral regions of the UK?

Our findings highlight several strengths, vulnerabilities, and axes of tension that address our first research question. A recurring concern among participants was that the regional innovation systems supporting the development and commercialisation of innovative ideas had missing elements or were operating below the necessary scale, placing both regions at a relative disadvantage. As a result, innovation remains hidden, hindered, or leaves its place of origin, meaning its value is not fully captured locally. These accounts point to broader dynamics around the regional flow of value, talent, and capital. Some degree of inward and outward flow is normal, and can even be beneficial, allowing regions to draw on wider networks and expertise. However, when outward flow significantly and persistently outweighs inward flow, a region's stickiness declines, along with the benefits innovation can generate for its broader population.

At the same time, participants recognised the cumulative positive impacts of a slow underlying process of change, particularly in the North West, highlighting concrete factors and forces that counteract the pull towards the South. We organise these findings around Markusen's (1996) axis of stickiness versus slipperiness, briefly reviewed in Section 1. In this context, a region is 'sticky' to the extent that it retains, at sufficient scale, the capital, talent, and supporting institutions and actors needed to facilitate knowledge diffusion and the development and exploitation of innovation, despite the pull of an increasingly frictionless, globally mobile economic environment.

In the remainder of this section, we first present two overarching themes capturing how participants view their regions and the concept of innovation. We then discuss forces of stickiness and slipperiness in Northern regions respectively.

3.1 Framing Northern Regions and Innovation

3.1.1 Growth and Momentum versus Structural Fragility

Participants described both the North West and North East of England as regions with significant place-based assets and growing innovation capacity. Although viewed as smaller and less institutionally dense than the Golden Triangle, both were seen as developing stronger innovation ecosystems through expanding capabilities, university–industry collaboration, and emerging innovation clusters. Participants also highlighted new regional investment initiatives and collaborative networks improving access to knowledge, funding, and commercialisation opportunities. From this perspective, the structural challenges these regions face may reflect

an earlier stage in their long-term development trajectory rather than fixed constraints, particularly in the North West.

Oliver: *I think Manchester at least is growing, right? The innovation ecosystem around the North West is... maybe coming from a lower base, of course, than London, but it is now growing and it starts to get a snowball effect.*

However, participants emphasised that this progress remains fragile. They highlighted longstanding structural inequalities between the North and South of England, particularly in access to investment, infrastructure, and capital. While some acknowledged that strong businesses can attract investment regardless of location, the dominant view was that regional disparities continue to shape opportunities for innovation and commercialisation. Participants also argued that, even when successful innovation emerges in the North, limited support for scaling often leads firms to relocate, reducing long-term regional benefits.

Frank: *The problem in the UK is we don't fund that bit that brings it and develops it very well, and then when we've done that, we don't try and keep it in region.*

These accounts suggest that the North East and, to a different level, North West are best understood as regions in transition. They are building the systems needed to support innovation, but not yet consistently able to fully retain its benefits. The risk, as participants framed it, is not that innovation fails to emerge in these regions, but that its value is realised elsewhere once it does. Whether growing innovation capacity translates into durable regional advantage will depend, at least in part, on the extent to which support for scaling and retention keeps pace with support for scientific research, diffusion of knowledge and early-stage development.

3.1.2 Recognising Different Types and Levels of Innovation

Both regions show relative limitations in the commercialisation of scientific strengths and their diffusion beyond the institutions in which they originate. Diane frames this as a problem of *visibility* rather than absence. Innovation is happening, but it is often invisible because of where it occurs, unrecognised within the everyday activities of individual firms, or confined within university research without translating into wider economic value.

Diane: *I think there's a lot of innovation, particularly centred around things like pharmaceutical, AI, Advanced manufacturing is a big area... I think innovation can also be... hidden away in some of the parts in the in the North West, and... You often go to what you would think is a stereotypical company, but then find there's actually lots of seeds of innovation there, but people don't always know about them. So there's innovation, but there's also... propagating innovation. And there's lots of innovation happening in universities, but often it gets trapped."*

Diane's observations point to three distinct but related gaps. The first is the well-recognised challenge of translating university research into economic value. Innovation exists in the North

of England but remains “trapped” within the universities where it is produced, rarely reaching sectors able to exploit it. The second is that innovations in peripheral places often lack visibility within wider innovation networks. The third is that much firm-level innovation remains unseen because it is incremental and process-based rather than radical or product- and service-based. Across all three cases, the challenge is not a lack of innovative capability, but one of translation: scientific research does not always travel outward, peripheral innovations do not always reach core networks, and practice-based and process-based innovations are not fully recognised at regional or national levels.

This observation is echoed by other participants in more quantifiable terms. Fiona acknowledged that the region is characterised as underperforming on conventional innovation metrics, such as patents and IP, relative to the Golden Triangle, but attributed this partly to the composition of the regional economy: a high concentration of engineering firms whose innovation activity is not captured in the same way as, for example, pharmaceutical or digital IP. This reinforces a recurring observation across interviews that existing measures of innovation do not always align with how innovation is practised in Northern regions. These accounts reflect the strengths and limitations of the two regions identified in the literature, as well as patterns captured in the European Commission’s Regional Innovation Scoreboard.

Priya makes this tension explicit by distinguishing between product innovation - the type typically targeted by policy - and process innovation, where much of the activity in these regions actually occurs:

Priya: *A lot of policies get designed [thinking about product innovation], whereas actually a lot of innovation happens at the process point, right? And policies don't always design for that, but that's where really a lot of it happens.*

Other participants provided concrete examples of the process innovation that Priya argues is overlooked by policy. For example, the organisation Barry works at contributes to the regional innovation system without owning or operating specialised infrastructure (in this case, a nuclear-licensed site). They supply people and solutions that improve their partners’ processes, often through incremental rather than transformational change. Similarly, David, from the automotive sector, emphasised everyday incremental improvement, describing innovation less as large-scale technological investment than as the cumulative effect of small, continuous changes (kaizen-style) embedded across a multi-layered organisation.

Neil: *We didn't realise that the innovative stuff inside of digitalisation of tools and techniques... you probably already have and you didn't realise. Some of the tools that you get with Microsoft 365... we didn't need somebody else to come in and tell us how to do that because this stuff was already there. We just had to learn for ourselves.*

A related tension emerges around how dominant understandings of innovation shape how regional actors interpret their own work and what is considered economically relevant in practice. Neil’s account illustrates this. Working at a large automotive manufacturer, he

described visiting a more digitally advanced factory and realising that his own site had already achieved a comparable level of digital maturity using tools it already possessed. However, he did not view this as innovation in the sense of creating something entirely new, since the solutions existed elsewhere; rather, the challenge was adopting and applying existing technologies to build internal capability, an absorptive, or adaptive form of innovation rather than a cutting-edge one.

3.2 Forces of Stickiness

Based on our preliminary analysis, we conceptualise RIS as emerging from complex, combinatorial, scale and path-dependent interactions between regional forces and factors. As our interviews explicitly explored regional barriers to innovation, our data provides greater depth on forces of slipperiness. Participants identified eight recurring and interrelated forces of slipperiness. Using the meta-theoretical structure–agency distinction from social theory (Dilaver & Gilbert, 2023), we categorise these forces at two levels. This conceptual integration provides a heuristic for understanding the complexity of RIS development and its implications for place-based policy design.

Our findings indicate that four structural forces - (de)industrialisation and (dis)investment, access to capital, policy disconnection, and spatial (in)equalities - shape what we term the structural conditions of stickiness and slipperiness. These structural conditions, in turn, influence more agentic and path-dependent potential in the region through brain drain, the development of absorptive capacity, various skills gaps, and innovators' place identity and confidence. Figure 1 illustrates these connections. The outer blue circle represents structural forces of stickiness/slipperiness, while the inner green circle represents agentic potential.

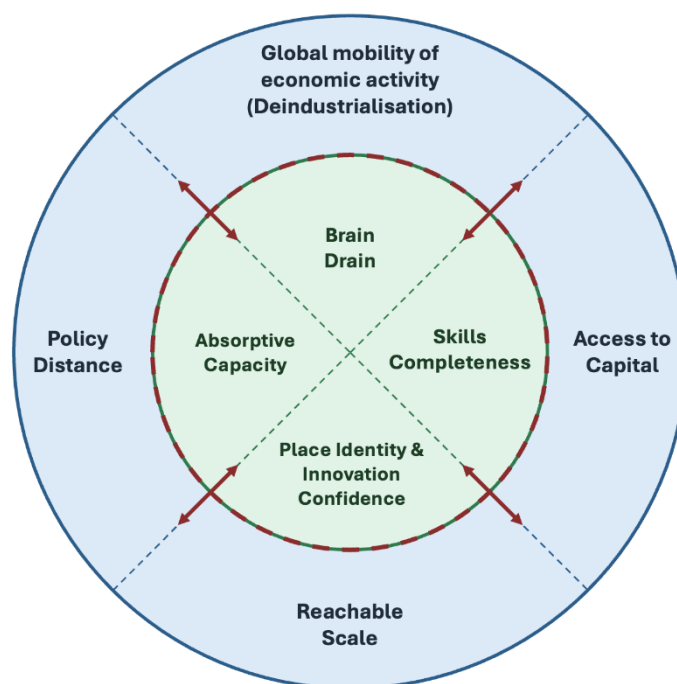


Figure 1. A Conceptual Model of Slipperiness/Stickiness and Its Drivers

Previous sections described perceptions of a long-term positive trajectory for Northern regions and questioned whether broader definitions of innovation would make their progress more visible. This section analyses the factors and forces that participants associated with the growing stickiness of the two regions. Although participants consistently described a substantial gap with the South, they also recognised relative strengths within this broader contrast. Many highlighted the scale of disparities through numerical comparisons, particularly the lower levels of investment captured by the North East and North West. One participant described this as “a massive opportunity gap”, a sentiment echoed by others.

Natalie: *The thing that I hear a lot is... the need for more investment in the North [West] and kind of deep tech businesses... We see it with funders as well, so kind of grant funders and government funders... a lot of that grant funding is going to kind of the Golden Triangle, and the South, and London."*

When considering the relative strengths of the North West and North East, participants were less consistent in how they compared the two regions. Some attributed similar strengths and weaknesses to both, while others highlighted greater investment or a larger business base in the North West; some rejected the comparison altogether. As outlined in the previous section, the two regions differ in important ways while also sharing common characteristics. The strengths and examples presented here should therefore be understood as broad themes rather than a like-for-like comparison. Examples mentioned by participants included innovations with impacts beyond the UK, as well as fast-growing digital businesses that combine innovative ideas with digital commercialisation capabilities, entrepreneurial drive, and support from regional digital and technology consultancies.

Christopher: *We still exist now as part of this big American company. We've got a plant in China, two plants in the US, a plant in the [North West town]. We're headquartered in the US, but we still do a lot of R&D in the UK.*

Craig: *Two guys from scratch, we were involved in their first platform build. They took a risk... Fast forward to 2026, the nudging 100 million pounds, they've got 600 people employed and they've turned the online [product] sales market on its head.*

Frequently mentioned strengths included lower costs, quality of life, and strong universities. In this respect, South East England was viewed as constrained by the pressures of its own success, while Northern England was seen as possessing equally strong technical and scientific talent. Diego, for example, observed that Manchester's appeal as a place people want to live gives it a fortunate advantage in attracting technical staff and talent (see Section 4.d). Similarly, Peter described the North East as “punching above its weight.”

Paul: *In Manchester there is the University of Manchester, Manchester Metropolitan University, the University of Salford... an employer or manufacturer in Wigan that is looking at new technology around house builds or retrofit glazing... would go to Salford University, not because it's linked to their borough, because Salford University within Greater Manchester has that facility.*

Gordon: *A lot of the companies we're backing are built on some of the disciplinary strengths of the North East universities.*

Although local authorities vary in resources, priorities, and capabilities, business growth remains a common agenda. For them, innovation refers both to improving their own service delivery and to supporting innovation among businesses in their areas. Across many city-regions, local authorities have made deliberate, long-term investments in initiatives such as science parks, innovation districts, and cluster-coordination bodies to strengthen regional stickiness.

Owen: *In [North East town], we are currently focusing on the space and satellite data sector... We also have quite a wide range of businesses within advanced manufacturing, semiconductors, green energy and others.*

Participants' views on infrastructure were mixed. Urban areas and city centres were found suitable for supporting innovative activities. Participants in the North East mentioned constraints and improvements related to public transport. In addition, although urban areas have good power and internet infrastructure, for digital technology firms using data and AI access to grid emerges as a new concern.

Tom: *We've got [a high number of] people on [Name] Business Park, but you can basically only drive there... There is a bus, but it's just like there might as well not be a bus.*

Neil: *[The local authority is] involved with the North East Automotive Alliance... We work shifts in automotive... [the local authority] changed the bus services and the routes to allow people to travel at the appropriate times linked to shifts.*

Participants' experiences of regional innovation culture and connectivity across the innovation system were mixed. Within this picture, both regions were described as having generally collaborative ways of working, with some aspects comparing favourably even to much larger hubs. A further strength, linked to the regions' manufacturing base, was the potential of clean energy and electrification, discussed in Box 2. It should be noted, however, that this study did not aim to systematically capture or evaluate all regional strengths. This example is explored in greater detail because it was highlighted by participants across different roles and sectors.

Box 2 – Clean Energy and Electrification

Both North West and North East are relatively manufacturing-intensive compared to the rest of the UK, and manufacturing is an important part of their innovation base. This creates a tension around energy prices and security. As the two accounts below show, this exposure is significant and can threaten the survival of businesses as well as their capacity to innovate. Furthermore, the development of IT and digital clusters is likely to involve additional energy requirements.

Marcus: *To give a little bit of background, we started in 2020 as a vertical farming company. So we were developing the equipment and we had a vertical farm... 2023, the Ukraine war really rocketed the electricity prices. So when you had a lot of LEDs, that became very expensive quite overnight...*

Neil: *The price of energy, the price of labour, the price of training, the actual physical costs to make parts in the UK... The cost of manufacturing in the UK is a genuine roadblock to investment in innovation.*

At the same time, the regions have natural assets and growing capabilities in offshore wind, tidal power, and hydrogen storage and capture. A rapidly developing clean energy sector could not only address an important vulnerability but also create opportunities for competitive advantage, well-paid jobs, and innovation outcomes. Electrification of the automotive sector is seen as conceptually and practically integrated with the development of clean energy.

Diane: *Things like tidal energy, hydrogen storage and capture... the ramifications would be enormous for the region. I mean, we would be completely self-reliant on energy if they did the tidal project in Liverpool... but also in offshore in Hull as well.*

Martin: *I use a very rudimentary metric... turnover per employee... you look at companies operating in... clean growth related to carbon capture, hydrogen... offshore wind... in that kind of 250K-300K. So massive opportunity, and their markets... are growing in demand... not just confined to the UK.*

In this sense, clean energy and electrification are where the regions' exposure to global shocks and their natural resource-based comparative advantages intersect. Realising this potential, however, is not simply a matter of identifying it. It requires long-term, capital-intensive investment across an interlinked energy system under high uncertainty, alongside steady development of skills and capabilities.

This section analysed perceived strengths of Northern regions, complicating a purely deficit-based reading of their regional innovation systems. Alongside the challenges and barriers discussed in the next section, our data highlights examples of globally adopted innovations, fast-growing digital businesses, science and technology assets, and expanding capabilities.

Some competitive advantages of Northern regions are defined in relation to South East England. Lower-cost operations and quality of life, for example, function as forces of attraction

away from the South East. Similarly, collaborative working cultures are often contrasted with a more transactional model of interaction in the South East. Given the manufacturing intensity of Northern economies, large anchor institutions also represent an important strength, acting as organising centres for supply chains and skills formation. Universities represent a more ambivalent asset: while recognised as engines of research and talent generation, these strengths are frequently constrained by challenges in translating research into innovation and retaining graduate talent.

Overall, our findings indicate that stickiness emerges from the interaction of multiple forces operating simultaneously across different scales. Large infrastructure investments, procurement, and access to public and private capital are important for sustaining scale and gaining traction. At the same time, participants described contexts in which stickiness is actively constructed by influential actors over long periods. In practice, even the alignment of bus schedules with shift patterns can sustain day-to-day operational viability. Regional stickiness is therefore shaped by both structural conditions and agency.

3.3 Forces of Slipperiness

One theme emerging from our data is that innovation generated in Northern regions, particularly the North East, does not automatically remain, or generate value, where it originates. This occurs through at least two mechanisms. First, the infrastructure needed to take ideas from research to commercial scale is often located elsewhere, requiring regionally generated innovation to move south even when the underlying research and development took place locally. Second, even when investment reaches innovative businesses in the two regions, external ownership and control can leave it vulnerable to being redirected elsewhere. Where regions have accumulated sufficient stickiness through the co-location of relevant actors and expertise, this outward flow may be resisted, albeit under persisting uncertainty for the future.

Marcus: *So even when there's fantastic research that's developed in Newcastle, Northumbria, that kind of thing, it's then, okay, where are the big institutions that can help us get to the next level? ...not only into commercialisation, but into an industry? ... I think it goes down South first, where the value is kind of extracted, and then the industry would come back up...*

James: *[Company A] are originally from just outside Oxbridge in the UK. They have worked with us as a catapult for the best part of 12 years... That's led to them just commissioning a [manufacturing] factory in [coastal town]... They have a [European] owner now, so they're often encouraged to take investment elsewhere. But the innovation ecosystem in the North East is strong, particularly in that very, very small part of the sector.*

Box 3 – Exit Stories: Slipperiness in Practice

Read alongside Marcus's account of translational infrastructure pulling value south, and James's account of ownership change creating a commercial pressure discussed above, the exit of an innovative business from a region appears as one of the clearest indications of slipperiness.

At the same time, our participants had different and equally strong views on whether exits are good or bad for a region, tracking their different positions within the innovation system: a venture capitalist, an angel investor, a high-tech startup founder and a former innovation-centre strategist. Based on their accounts, whether an exit ends up strengthening the regional ecosystem or draining it seems to depend on whether wealth and expertise are retained and recycled locally, whether the exit attracts investors' attention to the region or whether the underlying business and its assets survive the exit. Our findings cover multiple mechanisms through which commercialised innovations leave Northern regions. While these events are not unique to the North of England, if they are not allowing the regional innovation systems to reach a significant scale, they may be important.

One mechanism is the physical relocation of spin-out companies often due to not having enough support. Owen describes attending an accelerator dinner where, of three university spin-outs at the table, two had already relocated (one to Manchester, one elsewhere) reflecting, in his view, a regional shortfall of North East in supporting infrastructure, particularly finance.

This sits alongside Marcus's account of translational infrastructure drawing value southward, and James's account of ownership changing hands under commercial pressure. None of these mechanisms is unique to the North of England, but their consistency across sectors suggests a structural pattern rather than isolated incidents.

Alice, recalling her first spin-out while she was working at a North West university offers the starkest warning. Accordingly, after being bought by an American company, her business was "asset stripped", a pattern that she thinks is common, where acquirers absorb ideas they cannot exploit simply to remove them from the market.

Gordon, who is a venture capitalist, is more optimistic. In his view, since investment capital is concentrated in the South, high-value exits would be visible success drawing investors' attention to North. He points out that £150–200 million exits already occurred but it may take a £500 million–£1 billion exit before London financiers take real notice, and "think, oh, maybe I should get on the train and find out what's going on here". In his view, high-value exits also create local wealth and "millionaires" who, ideally, stay in the region and recycle their money and talent back into the ecosystem, acting as role models.

Liam, who is an angel investor, had similar views. Her view is that Northern founders, or the ecosystem more broadly may be setting their sights lower from the start, whereas the Southern ecosystem with deeper capital markets is more likely to push for the bigger, transformative outcomes. And because only the large exits are big enough to meaningfully strengthen the wider ecosystem, this modesty in ambition becomes self-reinforcing.

Frank, however, warns that exits mainly benefit the sellers, not the region or the business. He cites a large chemical company's very high value takeover by their rival and resulting exit from the North East. In his view, the company's assets were sold for more than they were worth so the acquirer could never be profitably operated

3.3.1 Global mobility of economic activity: Deindustrialisation

Many participants, particularly those based in or originally from the North East, traced present-day regional challenges to the decline of large manufacturing industries that once had global significance. Deindustrialisation in the global North lies at the heart of what Markusen describes as the slipperiness of global space. No longer anchored by regional connections or global competitive advantage, industries and capital can relocate, creating innovation capacity elsewhere. Participants also viewed deindustrialisation as an active policy choice, a deliberate withdrawal of state support that was never matched by sufficient reinvestment. In this sense, regional pride in the North's innovative history (to which we return later) is closely intertwined with a persistent sense of regional injustice.

Craig expresses this argument directly, linking decisions taken in the 1980s to a narrow balance-sheet logic. In his account, industries judged unprofitable or inefficient by particular accounting measures were dismantled without any plan to replace the employment, skills, or economic base they sustained. The result is a generational legacy. Communities once centred on coal mining, ports, and docks now face what he describes as "5th generation unemployed". From this perspective, the disruption to local economies caused by policy decisions in the context of globalisation did not resolve itself over time, as neoclassical economic theory might predict (Dilaver, 2026), but instead created path-dependent structural problems that cannot be overcome through individual agency alone. By contrast, Diane (a high-tech start-up founder and university spin-out from the North West) illustrates how individual agency can reopen possibilities for change. Her deliberate decision to locate her business in the North situates personal agency within broader processes of place identity and renewed regional confidence.

Craig: *In the 1980s, the government at the time pulled, you know, because it made sense on the balance sheet, they disassembled a lot of the heavy industries, but then completely and utterly failed to replace it with anything... we've now got a situation where you've got like the population that used to work down coal mines and on the ports and docks... we're now 5th generation unemployed.*

Diane: *Why I set my business [in the North] is because I think that manufacturing and businesses have a duty of care to shape towns, cities and villages. And when manufacturing goes out of a town or a city, they lose identity and they lose purpose... I'm originally from just outside of [North Eastern city]... that got knocked in the 80s and it's never really come back. So innovation is the key to all prosperous societies, you know, populations, because they create identities and then they create societies and they create a culture in people. They're all inherently linked.*

Other participants cited examples such as the cotton mills of Lancashire and the steel industry in Teesside to illustrate how industrial heritage continues to shape regional innovation. Rather than viewing it solely as a legacy of the past, they described it as a resource for future economic development. One participant explained how his organisation evolved from a family business that owned cotton mills before diversifying into new sectors, illustrating how industrial capabilities and entrepreneurial traditions can adapt rather than disappear. Another participant,

who was involved in establishing and growing a major innovation institution, argued that although much manufacturing in the North has contracted, significant industrial capabilities remain and continue to provide place-based advantages. Using Teesside, once “the world’s leader in steel”, as an example, he suggested that the region has come to understate its continuing industrial strengths, “pretending it never had a steel industry”, while aligning with national priorities. Yet significant activity remains, attracting research, investment, and external interest. Participants also highlighted the potential to repurpose former industrial sites as high-quality workplaces for emerging industries. These observations suggest that the legacy of deindustrialisation is shaped not only by economic change but also by policy priorities and regional self-perception. Narratives of complete industrial decline may therefore obscure enduring capabilities that continue to underpin innovation and regional development.

3.3.2 Access to capital: Limited financial support system

Access to capital is one of the well-known barriers to innovation in semi-peripheral places. Our participants described it as one of the most significant constraints on innovation in the North East and North West. Beyond the availability of funding, which is itself an important barrier, they identified weaknesses across the finance ecosystem affecting the supply of risk capital, the availability of finance at different stages of business growth, and the regional investment networks connecting entrepreneurs with investors.

Participants primarily framed access to capital in their regions as a problem of capital supply. They often understood the scale of this problem by comparing it with the availability of capital in the Golden Triangle. The numerical comparisons they shared suggested that the gap was seen not as a matter of small differences but of incomparable magnitudes. One participant illustrated this vividly by comparing Oxford's venture capital base with that of the North East's universities combined. Other participants echoed similar perceptions of a substantial gap. These comparisons reflect careful observations of a perceived structural disparity.

Gordon: *The biggest constraint... is the lack of capital. We're still very undercapitalised. There are only a very small number of VCs operating in the North East. There is very, very little high risk early stage capital. It's a problem that's become more pronounced post-Brexit, because a lot of the early stage capital in the Northeast was EU driven... And the British government pledged to effectively fill the gap left post-Brexit, but it hasn't happened.*

Participants' concerns extended beyond the overall availability of capital to how existing funding is distributed across the innovation lifecycle. A recurring theme was the accelerator funding problem, whereby businesses can access early-stage grants and proof-of-concept funding but encounter a significant gap before becoming attractive to institutional venture capital. Participants described this also as a "missing middle" in the funding landscape.

Several participants identified this stage as a critical bottleneck in the commercialisation process. While early innovation funding was perceived to be relatively accessible, securing the

investment needed to validate technologies, demonstrate commercial viability, and progress towards scale was widely regarded as much more difficult. This gap was seen as preventing otherwise promising businesses from progressing to later-stage investment. Notably, participants from different parts of the innovation ecosystem - including a former Catapult leader, an angel investor, and a venture capitalist - identified this issue independently and in remarkably similar terms, suggesting a widely shared opinion that it represents a structural weakness in the regional finance landscape.

Frank: *There's two simple sides to the access to finance equation. The supply side... and the... demand side, the businesses themselves... the £150,000 to £500,000 that you need to prove an idea, it's almost impossible to get in the UK. And then the £500,000 to £2 million that you need to scale it up to the point where it becomes attractive to a proper venture capital investor, that's still very difficult to get.*

This distribution of funding and capital gap is compounded by the loss of funding sources that have not been replaced. Several participants pointed to the disappearance of EU and European Investment Bank funding as losing a critical source of early-stage capital in the North East, one that has not been matched by the UK policymakers.

A further barrier identified by participants related to the administration of public funds, which they viewed as a significant constraint on startup survival and growth. Public grants were commonly described as operating retrospectively, reimbursing costs already incurred rather than providing capital upfront. This shifts the cash-flow burden onto recipient organisations, requiring firms to finance projects in advance while awaiting reimbursement. Similar concerns were raised regarding charitable and philanthropic funding, suggesting that this reflects a broader feature of public and quasi-public funding administration in the UK rather than a sector-specific issue. Participants argued that these administrative arrangements can undermine the businesses they are intended to support. One participant described how delayed grant payments and lengthy claim verification processes leave small firms carrying substantial financial risk, with minor administrative errors capable of delaying reimbursement for months.

Stephen: *We're seeing an increasing number of businesses falling out of the grant application process because they can't get the cash flow to sustain it. The moment you have one minor error on a claim, you can be sat cash-flowing the public sector for six, seven, eight months. If you've already cash-flowed three or four months of a project, and you're a small business, and it's fifty grand - that is the difference between going under or not..*

Another approach to access to capital in our interviews focuses not on the supply of capital but on the demand side, specifically the investment-readiness of firms and the maturity of the wider investment ecosystem. The argument was that regional businesses are less able to attract available capital because the surrounding ecosystem lacks some of the capabilities and networks that support investment. From this perspective, access to finance depends as much on the maturity of a region's investment ecosystem as on the availability of financial products.

Participants pointed to a specific mechanism underlying this challenge. Compared with longer-established regional innovation systems, the North East and North West of England have fewer entrepreneurs who have successfully built and exited businesses before becoming angel investors. This absence is self-reinforcing: without a critical mass of experienced founders-turned-investors, regions lack not only early-stage capital but also the mentoring, networks, and investment expertise that experienced angels provide through both codified and tacit knowledge. Without this support, fewer businesses reach successful exits that generate the next generation of angel investors. As one participant put it:

Liam: *What we have... is nowhere near as many high nets and nowhere near as many people that have created businesses and sold businesses... if you've got lots of people that have been through that process, have taken angel investment, that then creates more angels. Manchester is slower on that.*

Framed this way, the demand-side account converges with the regions' broader absorptive capacity problem. The constraint is not simply a lack of capital, but the limited density of experienced investors, mentoring relationships, and experience-based knowledge about how and when to raise finance needed to make full use of available capital.

Amid these largely critical accounts, the Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS) tax relief schemes stood out as a positive. Two participants independently cited them as effective in reducing investor risk and supporting early-stage investment. One participant went further, suggesting regionally differentiated tax incentives as a lever worth exploring as a constructive proposal rather than a grievance and a possible direction for further research.

Viewed as part of a wider finance ecosystem challenge, improving access to capital in the North East and North West requires not only increasing the volume of capital available, but also improving the conditions and mechanisms through which it is distributed. From this vantage point, addressing the capital gap requires tackling several interconnected problems: the shortfall in early-stage risk capital following the loss of EU and European Investment Bank funding; the "missing middle" that leaves businesses stranded between proof-of-concept grants and institutional venture capital; the administrative structure of public funding, which shifts cash-flow risk onto the businesses it is intended to support; and the relative immaturity of regional investment ecosystems, where a smaller pool of exited entrepreneurs limits both angel capital and the mentoring needed to help future businesses become investment-ready.

Box 4 – Venture Capital: Insider and Outsider Views

Participants presented a more nuanced picture of venture capital (VC) in the North than a simple narrative of under-provision. Those within and outside the investment community argued that the challenge lies not only in capital availability, but also in how VC is understood, targeted, and deployed.

A venture capitalist suggested that VC is often viewed with unnecessary scepticism. While appropriate for only a small minority of businesses with exceptional growth potential, he argued that many firms are better suited to organic growth or alternative forms of finance. In his view, entrepreneurs need a clearer understanding of when VC is appropriate, while investors must also become more responsive to founders' needs.

Other participants questioned whether the current VC landscape adequately supports regional innovation. Several observed that private investors typically favour businesses with demonstrated commercial traction, leaving early-stage ventures reliant on public funding. Others argued that publicly backed funds often adopt conventional VC approaches, concentrating investment in familiar sectors such as digital technologies rather than reflecting the diversity of regional industrial strengths.

Gordon: *There's sort of this nervousness around venture capital... It is understanding that just in a few instances, the growth potential of the business is exceptional... venture capital should, in those instances, not be seen with suspicion, but seen as a partner... equally, venture capitalists need to be often more entrepreneur-friendly and entrepreneur-aware.*

Frank: *If you talk to the VC market, they'll say less than 1% of the businesses they engage with should be eligible for VC... The VC firms who are securing those funds are operating as if they were their own funds, so there's not necessarily a spread of risk in terms of sector focus. They might be all about digital tech, so they're not doing anything other than whatever it might be.*

Callum: *Risk players don't do early stage. They wait for some things to come through.*

Participants also suggested that businesses seeking significant growth capital increasingly look beyond the UK, with overseas investors, particularly in the United States and the Middle East, perceived as providing faster access to larger pools of finance. Taken together, these perspectives suggest that the challenge for Northern regions is not simply attracting more venture capital, but ensuring the availability of diverse forms of growth-oriented finance that align with regional sectoral strengths and are accessible across the innovation and enterprise lifecycle.

3.3.3 Reachable Scale: Spatial Inequalities Between and Within Regions

Stickiness, agglomeration, proximity and reachable scale, in terms of markets, firms, labour, skills, and knowledge, are related concepts that capture some of the nuances of spatial conditions in which regional innovation systems develop over time. Our participants referred to limitations with respect to the scale organisations in the North of England can reach. Although the discussion in previous sections has focused largely on the North–South divide as the primary axis of spatial inequality shaping regional innovation ecosystems, participants consistently described additional inequalities within the North that complicate this narrative. Rather than viewing the region as a single disadvantaged geography, they emphasised considerable variation in access to innovation funding, infrastructure, and opportunities between places. This suggests that some barriers to innovation support are produced within the regions themselves. Such intra-regional inequalities are particularly important because they are less visible and less frequently addressed in policy debates.

The first layer of spatial inequality identified by participants concerns uneven access within regions. Participants highlighted the concentration of innovation infrastructure, investment, and opportunities around specific anchor cities and towns, leaving nearby but non-central places underserved. Although often close in geographic terms, these places may be poorly connected through transport infrastructure, meaning that opportunities develop just beyond their reach.

In this context, participants repeatedly described a core–periphery structure. They did not question the success of places such as Manchester or Newcastle; rather, they challenged the assumption that neighbouring communities could readily access the opportunities they generate. Physical distance, weak transport connectivity, and the concentration of innovation assets in a small number of locations meant that opportunities were often geographically close but practically inaccessible.

Laura captures this dynamic through the example of a town in Lancashire. She describes how major banks have established technology hubs in Manchester to support entrepreneurs and innovators, and asks why similar facilities could not exist in her town. She challenges the assumption that people in Lancashire can easily access such resources, noting that doing so may require an hour-long journey on an unreliable train. These practical barriers shape who can participate in regional innovation ecosystems, regardless of talent or ambition. In a similar vein, Megan describes centralisation within Greater Manchester itself. While acknowledging significant growth and potential across the wider conurbation, he argues that these benefits remain concentrated in the centre rather than being distributed to smaller businesses on the fringes of the city region. This suggests that core–periphery dynamics can reproduce themselves across different scales.

Similarly, participants highlighted the dispersed geography of the North East, where distances between places such as Blyth, Durham, Teesside, and Newcastle may be modest in absolute terms but remain difficult to navigate in practice. Bringing relevant actors together for

networking, collaboration, and ecosystem-building is therefore more challenging. This represents a structural cost that more compact or better-connected ecosystems do not face. The effects of isolation are particularly visible in some places. Richard describes small coastal towns where, in his view, attention is focused on the basic survival of existing populations rather than future-oriented economic development. His account carries a strong emotional dimension, describing the experience of driving through these towns and villages as something that can bring a person close to tears. This emotional weight is significant in itself: it suggests that the inequalities described here are experienced not only as economic deficits but as lived, visible, and ongoing loss.

These accounts demonstrate that the same core–periphery pattern recurs across multiple spatial scales: within Greater Manchester itself, across the dispersed geography of the North East, along the coastline more broadly, and between sub-regions with differing governance arrangements. This complicates the familiar narrative of Northern disadvantage relative to the South by showing that the challenge is not only one of unequal distribution, but also of limited connectivity and uneven access to regional innovation systems. Together, these constraints reduce the effective, reachable scale that the North West and North East economies can achieve by limiting the ability of people and firms to participate, and knowledge and investment to circulate across the region.

3.3.4 Policy Distance: From Disconnection to Devolution

Participants questioned whether national innovation policy adequately reflects regional realities, describing broader patterns of policy disconnection across spatial, temporal, and institutional dimensions. While some recognised that policy interventions had attracted economic activity to Northern regions, most participants highlighted a persistent disconnect between where innovation occurs and where decisions about it are made. They highlighted broader patterns of policy disconnection operating across multiple levels. These included a disconnect between where innovation occurs and where decisions are made, a mismatch between innovation timescales and those of public policy, and policy designs perceived to favour particular sectors or business types while overlooking the diversity of regional innovation ecosystems. A North East IT cluster example illustrated how delays in decision-making and support mechanisms can constrain RIS development, with strategic investment and ownership often remaining geographically distant to the region.

Marcus: *The wages are a lot cheaper up here, and so there's a lot of companies that come up to use the labour... the problem with that was that it was so disconnected from where the decisions were being made, the funding was being delivered.*

Devolution was welcomed by many participants as enabling more locally tailored initiatives, although several argued that key powers and resources remain concentrated in central government.

Gordon: *The movement towards decentralisation is really important... we have much greater chances of solving our own challenges than central government does, from London...*

Stephen: *Devolution within England, in many areas, has been needed, but it's not really moved the dial away from London being the gravitational centre. It just means that we've got all the power and no money.*

At the same time, devolution was also associated with decreasing policy attention elsewhere. Participants argued that access to innovation funding has become increasingly tied to whether an area has adopted a mayoral combined authority, creating disparities between neighbouring places with similar economic characteristics, industrial histories, and levels of need. In this account, differences in funding eligibility reflect institutional arrangements rather than underlying economic potential. Martin illustrates this dynamic through the example of Cumbria. Describing a functioning programme previously delivered in the area, they explain that it no longer exists—not because local need declined or the programme failed to create value, but because funding structures have shifted towards areas with mayoral combined authorities. Lacking this institutional arrangement, Cumbria is effectively excluded from this category of funding until it adopts the required governance model. What makes this account particularly striking is the perceived arbitrariness: the economic rationale for the programme and the region's need for support remain, yet eligibility has changed due to an administrative and political condition.

Participants also identified multiple interrelated forms of policy discontinuity. They highlighted the short term orientation of policy in general, the disruptions to support institutions that were established over a long time, a mis-match between funding cycles and technological processes, and a shorter-cycle pattern of "start-stop" funding that frequently ends and re-starts funding of programmes.

Drawing comparisons with countries including Finland, Japan and South Korea, participants suggested that more successful innovation systems are characterised by stable, long-term strategic commitments that are refined over time rather than repeatedly replaced. In contrast, participants perceived UK innovation policy as frequently shifting priorities, limiting the ability of organisations and regions to develop cumulative capabilities.

Frank: *Japan... had a 2030 strategy in 2010 for fuel cells and hydrogen. They've revised it every five years since, and the things that don't work have disappeared and the things that do work have been developed further nationally.*

Regarding the discontinuities in support structures that are built over a long time, several participants pointed the dismantling of collaborative initiatives, networks and organisations had brought universities, local authorities, and businesses together. This type of work often took years before establishing productive regional relationships. Once the programme funding ended, however, these connections were disrupted.

Craig: *[Supporting organisations], I think, ceased to exist in 2012... there's been almost nothing available in the North East... It's been very sporadic and very thin on the ground.*

A second, more strategic form of disconnection concerns the mismatch between policy cycles and objectives and the timescales on which innovation in different sectors actually happens. Multiple participants raised this independently, particularly in relation to sectors characterised by lengthy innovation pathways.

Stephen: *Policy generally in the UK swings from one side of a pendulum arc to the other side... the irony is we're intervening in the medical technology sector, which typically for a pharmaceutical can take 8 to 10 years to bring to the market, or for a biomedical device or a med device can take three to five years. And we're trying to intervene on 24 month cycles. Surprise, that doesn't work.*

Paul: *Quite often, government projects and combined authority, devolved projects, the flaw in the plan is that there's no longevity and they're always short term.*

A third, shorter-cycle form of discontinuity concerned programmes funded on annual or biennial cycles, which participants across business support, workforce development, and collaborative innovation described as a recurring "start-stop" pattern. Initiatives were frequently discontinued before relationships, trust, and organisational learning had time to embed, requiring organisations to rebuild partnerships and recreate institutional knowledge each time funding was renewed or replaced. One participant linked this pattern to a specific example of lost regional capacity.

Martin: *The reason for that is probably the fragmentation and the short-term nature of support...it's very start-stop.*

Owen: *To judge it on two and a half years... we've had stop-starts because we've got to go through procurement... You just feel like you're getting somewhere and then you're wrapping it back up in the box again. And that's bad for those communities, particularly in the rural areas. You're trying to build trust... and then you suddenly go, oh, this is great, and then, well, it's all disappeared again.*

Participants also criticised selective approaches to business support that prioritise high-growth firms and "unicorns", arguing that such models overlook the wider entrepreneurial pipeline and the diversity of regional innovation pathways. In this regard, technological imaginaries within global dynamics may impact upon types of activities that are supported.

Stephen: *The government policy now is moving into picking winners... If you know how to pick winners, you'll be working in VC. And even they get it wrong sort of 80% of the time, don't they?*

Paul: *Innovate UK changed their strategy to focus on unicorns... if in doing that, where are the next unicorns coming from? So there needs to be a view that reach... the whole journey... Most R&D tax credits are taken up in city centres of conurbations... not as much out in Wigan, Oldham, Tameside and the like.*

These findings suggest that policy disconnection operates across spatial, temporal, and institutional dimensions: between innovation activity and decision-making, between innovation and policy timescales, and between selective support models and diverse regional development pathways. Innovation policy was, therefore, perceived not simply as underfunded, but as insufficiently aligned with the geography, timescales, and development trajectories of regional innovation. Although participants recognised encouraging progress through devolution, many argued that stronger regional innovation systems require longer-term policy commitments, more stable institutional support, and greater regional capacity to shape investment decisions.

3.4 Agency-Related (Agentic) Potential

3.4.1 Place Identity and Confidence in Innovation Capabilities of the Region(s)

Participants' accounts of the region's industrial past, and the hesitance they observe in confidence in the region's innovative capabilities, together offer a coherent picture of place identity and innovation confidence. How a region remembers its own achievements, and how confidently its people speak about its capacity to innovate now and in the future, appear closely bound together. Participants frequently paired a strong sense of regional industrial achievement with narratives of subsequent disinvestment and deindustrialisation.

Craig: *This region created the modern world in its entirety, right now. So steam turbine engines, railways, light bulbs, you name it, it all started here and probably Manchester. I'll let the Mancunians have some credit on this. There is no place on the planet that has more innovation, or the potential for it, than the North East of England.*

Christopher: *We started in Blackburn in Lancashire in the 1980s... as a spin-off from a very innovative, privately owned company... there was a guy, part of a mill-owning family, ... who looked at the cotton industry and decided that wasn't a great bet for the future, and started looking at plastics.*

This inherited sense of achievement, however, does not straightforwardly translate into present-day confidence. A further barrier operates at the level of individual and community sentiment rather than institutional structure. Participants described a lack of confidence and a sense of insufficient legitimacy as a genuine constraint on innovation activity, independent of resource or opportunity.

Laura: *They'll introduce myself and they'll say, 'I'm just a...' and then whatever their job is... They always talk themselves down... We just need people to feel prouder of their area. There's a lot of good things happening... Everybody needs a boost, don't they?*

James: *I think we should be prouder of it. We should shout about it a bit more. We should be really, really pushing it hard.*

This theme is corroborated independently across two participants working in different contexts (rural social enterprise and further-education-based business support). Adrian also connects

this directly to a measurable outcome — regional grant success rates — suggesting confidence and legitimacy are not merely a subjective experience but may have concrete material consequences.

Julie: *Innovation literacy as well as investment literacy, in terms of getting businesses to have that opportunity and confidence to grow. And I think more examples of what success could look like - there's not enough of those in the region.*

Adrian: *part of it is about sort of, lack of legitimacy. Why should I, what gives me the right to ask... to go out and make that change? It's almost like a sort of an impostor syndrome. I've got a great idea to do something, but I don't have the qualifications.*

3.4.2 Brain Drain

A closely related but analytically distinct barrier to regional economic development is the outward migration of skilled graduates and talent, a pattern described independently by participants across different sectors and professional roles. Across these accounts, participants locate the cause of graduate outflow not in the graduates themselves or in the quality of regional universities. Indeed, universities are frequently praised for producing high-quality talent. Instead, they point to a lack of regional opportunities and viable career pathways as the main driver. Universities generate skilled graduates, but regional economies often fail to provide sufficient reasons for them to stay. Reflecting on his own experience studying in Teesside in the mid-1990s, one participant recalled that an estimated 80–90% of his cohort moved to London after graduation, a pattern he suggested has remained largely unchanged despite repeated policy efforts to “stop the brain drain” and improve graduate retention. In his view, these interventions have been too limited in scope and poorly designed to generate meaningful change.

A large regional software employer echoes this diagnosis from the employer perspective: the issue is not talent generation but retention. The region’s universities produce excellent candidates whom firms are keen to hire, yet many graduates subsequently leave for London or elsewhere once qualified. A third account, from the automotive sector, highlights a further dimension of this challenge: despite growing global demand for digital skills and a strong supply of graduates in these fields, the region lacks sufficient relevant roles to retain them. Another participant offered a demographic perspective on the same phenomenon, pointing to population profiles for the North East as evidence of this pattern. Population levels rise steadily through childhood and adolescence before declining sharply around age 23, when students typically complete their studies and enter the labour market. This pattern was interpreted as a demographic signature of graduate outmigration following education.

A more forward-looking concern, raised independently by two participants, points to a related but analytically distinct challenge, the disruption of traditional pathways through which entry-level workers acquire foundational workplace skills. Unlike brain drain, this does not involve talent leaving the region, but rather the erosion of the training processes through which new

workers develop core professional competencies. One participant framed this as a cost-driven substitution challenge facing employers more broadly. Junior roles have traditionally provided value beyond their immediate technical contribution, offering structured environments where new workers develop professional skills, learn workplace norms, and gain experience. The concern is that firms may increasingly substitute these developmental functions with AI agents, which are available continuously and operate at relatively low cost, reducing incentives to invest in early-career human development. A second participant highlighted a related distributional risk, particularly relevant to inclusive growth. As digital skills become increasingly central to employability, communities already facing weaker digital connectivity and fewer opportunities may be disproportionately affected. Rather than becoming beneficiaries of digital transformation, these places risk falling further behind. The participant argued that this risk requires active intervention to ensure that people in smaller towns are not disadvantaged by their location.

A related but distinct mechanism concerns the front end of the employment pipeline itself. Even where entry-level jobs exist in principle, participants described structural barriers that make it difficult to place graduates and school leavers into them in practice. Reflecting on the Manchester context, one participant described genuine entry-level graduate roles as now, in his words, “near impossible” to find.

Tom: *I think that the North East... doesn't work well enough as a region as a whole... the university cluster there generates amazing talent, and we benefit from that quite a lot with hiring grads out of all the universities. But so it's not the generation of talent, it's actually just keeping them in the North East... We have these amazing candidates come out of the system and then they move to London or whatever.*

Craig: *A lot of these junior jobs... you kind of learn the basics, but really what that was about... socialisation, how to operate in a team, how to answer to line managers... but the temptation with businesses [is]: well, we just get an AI agent to do that, and they all show up, they work 24/7, they don't cost us anything more than a few tokens.*

Another participant, speaking from a recruitment and client-placement perspective, explained why this challenge persists even where demand for skilled workers exists. Graduates often enter the labour market without the practical, job-ready skills employers seek, and developing these capabilities requires significant time and investment. A graduate mechanical engineer, for example, may require up to two years of further training before becoming a fully functioning professional. The participant argued that asking employers to absorb this cost, rather than hiring workers able to contribute immediately, can therefore be difficult to justify. This reduces firms' willingness to recruit graduates and creates an additional barrier to regional talent retention alongside outward migration.

3.4.3 Absorptive Capacity: The Missing Capability to Act on Opportunity

Alongside place identity and brain drain, participants identified limitations in the capacity of firms and individuals to recognise and act on opportunities. A key finding was that promising ideas often fail not because they lack technical potential or commercial value, but because firms lack the internal capacity to develop them. This challenge was particularly evident among smaller firms, where limited staffing, competing operational demands, and the costs of investing in new activity make innovation difficult to pursue alongside day-to-day business pressures.

Martin: *Quite often in Cumbria, particularly, it would tend to be smaller based businesses... a lot of the companies there were micro. One of the issues with that is absorptive capacity... There's quite a few of the companies I've worked with... really innovative ideas... but they don't have the capacity to... even if you've been through the process and validated it, this is desirable, feasible and viable. Actually, them having the bandwidth to take it forward is probably the thing that kills the idea.*

In this account, absorptive capacity represents the bridge between recognising opportunities and implementing them. Even where opportunities are recognised, limited staff, managerial attention, and financial flexibility often prevent firms from translating them into innovation. Another participant (Craig) explained that their organisation had developed a commercial model around providing external capability to firms lacking internal resources. Rather than replacing existing ideas or expertise, the company provides additional capacity that enables teams to progress innovation more quickly. This account suggests that parts of the innovation ecosystem have developed market-based responses to absorptive capacity constraints.

Participants also described several mechanisms through which capacity is reduced or redirected away from innovation. For founders and small businesses, administrative responsibilities associated with funders, investors, compliance and reporting requirements were described as consuming valuable time and attention. One participant argued that these demands can reduce founders' ability to focus on innovation itself:

Diane: *It takes a lot of headspace away from those founders. So then they can't be as innovative in the business workplace because they're tied up in loops.*

Others framed the challenge as a consequence of operating under financial pressure. For smaller firms focused on maintaining survival, innovation may be desirable but practically impossible because there is no spare capacity available to explore new opportunities. In Owen's words, in relation to sustainable innovation, "[y]ou can't go green if you're in the red."

In a more optimistic account, Callum argued that lower living costs in Northern regions can provide researchers and entrepreneurs with greater financial and personal flexibility, creating the "headspace" needed to take commercial risks. This suggests that absorptive capacity is shaped not only by firm-level resources but also by wider regional conditions. Lower costs,

supportive networks, and funders can enhance the ability of individuals and organisations to experiment and pursue innovation.

Our findings also highlight that absorptive capacity is not simply something firms possess or lack; it can be developed through experience, networks, and knowledge transfer. Neil described his organisation as benefiting from an unusual combination of experience across three generations of employees, enabling practical knowledge to flow between senior workers, established employees, and new entrants. This internal continuity provided a foundation for adaptation and innovation. However, participants suggested that such knowledge transfer is difficult to sustain more broadly. The loss of experienced workers through retirement or movement between firms risks weakening the collective capabilities of regional innovation systems. In this sense, absorptive capacity depends not only on current resources but also on whether organisations can maintain and renew capabilities over time.

3.4.4 Skills Gaps

Participants did not share a common view that a skills gap exists in the first place. Where constraints were identified, they were rarely described as a single, generic “skills gap”; instead, participants highlighted different shortages emerging at different stages of the innovation process. Importantly, these accounts also demonstrated that skills gaps coexist with areas of genuine regional strength. Several participants emphasised that the regions possess strong technical and research capabilities, particularly in areas supported by universities and established industrial expertise. The challenge, therefore, was not simply the absence of talent, but the limited availability of complementary skills, commercial experience, and translational capabilities required to convert knowledge and research strengths into market outcomes.

Diego: *I really don't think from a technical standpoint, there's a skills gap at all. One of the things we've not struggled with at all is hiring or finding the right people, or turning the right people from one skill set to the other. I think we're very lucky to be in Manchester in that sense. We've been very good at finding very good technical people... and it's a place where they want to live.*

Two broad challenges emerged. The first relates to the transition from technical or scientific capability to commercialisation. Within this context, participants identified a shortage of entrepreneurial, financial, and scaling expertise needed to transform promising ideas into viable and successful businesses. The second concerns firms' capacity to implement innovation in practice. Participants highlighted gaps in project management, curiosity-driven problem solving, and broader “soft”, organisational, and interpersonal skills required for employees to contribute effectively to complex, cross-disciplinary, and collaborative innovation activities. These capabilities were viewed as critical in determining whether firms can successfully execute promising ideas and navigate the challenges that arise once the initial commercial potential of an innovation has been demonstrated.

Abigail argued that academics often provide essential sources of technical expertise but rarely possess the entrepreneurial experience required to independently lead company growth. From this perspective, successful commercialisation depends on combining specialist knowledge with entrepreneurial and managerial capabilities; however, these complementary skills are often more difficult to access within Northern regions.

A related challenge concerned the availability of experienced financial expertise. Oliver contrasted UK investment networks with those in Silicon Valley, arguing that many UK investors are drawn primarily from finance backgrounds rather than from entrepreneurial experience. Consequently, entrepreneurs may gain access to capital without necessarily benefiting from investors who understand the practical realities of building, scaling, and navigating the challenges associated with business growth.

Where Neil (above) described a business that had, through fortunate circumstances, retained three generations of staff who enabled the internal transfer of skills and knowledge, Simon described a more common generational cliff-edge between senior managers and junior staff where no comparable mechanism for skills transfer was in place.

This concern highlights that skills gaps are not solely a matter of recruitment, but also of how capability is sustained and reproduced over time. Where firms have successfully maintained links between experienced employees, early-career workers, and educational institutions, knowledge can be transferred, renewed, and adapted across generations. In contrast, where these connections are absent, regions risk losing valuable tacit knowledge that cannot be easily replaced through formal training alone. The challenge, therefore, is not simply a shortage of new entrants, but the potential loss of accumulated practical expertise when experienced workers retire without effective mechanisms for knowledge transfer.

Viewed as a whole, these findings highlight that regional innovation systems in Northern England face challenges in combining technical expertise with the broader capabilities required to commercialise and scale innovation. Participants' accounts indicate that skills constraints emerge across multiple stages of the innovation pathway. At the front end, regions need stronger connections between technical expertise, entrepreneurial capability, and investment support to enable commercialisation. Further along the pathway, firms require organisational, managerial, and project-management capabilities to implement innovation effectively. The challenge identified by participants is therefore not simply a shortage of skills, but a broader need to develop, connect, and renew the capabilities required for regional innovation systems to mature and generate sustained outcomes.

Research Question 2: How inclusive are existing RIS in creating opportunities, enhancing capabilities, and improving outcomes in the local economy?

Compared with the readiness with which participants discussed the strengths and barriers of their regional innovation systems, questions of inclusivity (who benefits and who may be excluded) often required more reflection. Most participants worked through their responses rather than drawing on a clearly formed position or established set of experiences. Those closer to local government tended to have more readily available perspectives.

A shared theme was that innovation is generally beneficial for regions, although participants framed these benefits at different levels of specificity. At the broadest level, some described innovation as inherently inclusive, improving local economic prospects and shaping external perceptions of place (Martin and Laura). Others grounded this optimism in more specific economic mechanisms, arguing that innovation creates productive employment and recirculates income within regional economies (Frank). A further distinction emerged around sectoral examples: rather than speaking generally, some participants highlighted industries such as offshore wind, health and life sciences, and digital technologies as tangible examples of innovation driving long-term regional transformation in Northern England (Keith).

Within this broader theme of innovation benefits, participants distinguished between groups better positioned to access these benefits. Rather than a simple divide between “winners” and “losers”, their accounts suggest that innovation outcomes emerge from the interaction of organisational capability, sector position, skills, social networks, and wider social inequalities.

Related to the theme of absorptive capacity covered in Section 4c, many participants identified organisational capacity as a key determinant of which organisations benefit from innovation. Although expressed in different ways, they converged on the view that innovation requires resources—including financial capacity, specialist expertise, available time, and the ability to take and manage risk—that are unevenly distributed (Adrian, Craig, Martin). In this context, innovation was understood not only as the generation of new ideas, but also as the ability to develop, implement, and sustain them. Organisations with greater internal capacity were seen as better able to recognise opportunities, pursue new activities, and absorb uncertainty, while smaller firms often struggled to move beyond day-to-day operational pressures.

Participants further argued that initial differences in organisational capability become reinforced through the innovation system itself. Rather than isolated barriers, access to innovation funding, public procurement, and collaborative opportunities was described as favouring organisations that already possess the scale, experience, and institutional credibility to compete successfully. Some noted that incentives such as R&D tax credits were “completely inaccessible” to many businesses in their regions (Craig, Martin).

This argument was extended beyond individual firms to the priorities embedded within policy implementation. Christopher argued that regional innovation policy often favours a small

number of visible, high-profile companies while overlooking less prominent but economically important businesses. Similarly, Priya suggested that local growth strategies frequently prioritise high-growth sectors while giving less attention to the “foundational economy” of businesses such as retail, construction, and administrative services, despite their substantial contribution to regional employment. From this perspective, competitive advantages become path-dependent, creating a lock-in effect (Martin) not only through differences in firm scale and capability, but also through strategic choices about which sectors, technologies, and business models receive policy attention and investment.

Participants also highlighted that the distribution of the benefits of innovations within society members was also uneven, with opportunities often concentrated among those who already possess higher levels of skills, educational attainment and professional connections. Several participants suggested that current innovation-driven growth remains disproportionately accessible to highly skilled, university-educated and professional groups. One participant (James) captured this by saying the benefits of innovation are currently “quite white collar”. Another participant (Oliver) argued that entrepreneurial opportunities can themselves be socially selective, with many founders in his sector coming from university and postgraduate backgrounds. While he recognised that alternative pathways - such as progression through apprenticeship – exist, in his view, these remained relatively uncommon.

Importantly, participants observed similar inequalities within sectors undergoing technological transformation. Using the example of digital sales and distribution platforms, Neil highlighted the tension between cutting edge innovation and the continued presence of lower-paid, precarious roles. Similarly, some participants identified the possibility that innovation may exacerbate existing inequalities by displacing certain forms of employment. They pointed out that technologies such as artificial intelligence develop more rapidly than education, training and labour market policies can adapt. These arguments suggest that technological advancement does not necessarily result in more equitable access to higher-quality employment, particularly where opportunities to develop new skills are unevenly distributed.

In addition to qualifications, participants also identified access to innovative activities varying based on gender, class, race and ethnicity. Several participants argued that access to innovation opportunities is influenced by who is present in decision-making spaces, professional networks and entrepreneurial communities.

Tom gave a recent example, describing an industry meeting where sector issues are discussed and decided: “I think it was about 20 people there and two people were women. One was a person of colour. It was like, it's just white men.” Megan offered a similar observation, noting that the innovation system in the North West remains, in her words, “predominantly... a very white male-led place”, notwithstanding growing efforts to support female founders. Nigel discussed how networks can reproduce advantage. He acknowledged that professional networks can operate as “boys' clubs” while recognising his own position within these networks through private education and established entrepreneurial connections. He, nonetheless, saw

a tension between inclusivity and using public funds responsibly. In this regard, “if it’s taxpayers’ money, inevitably [you’re] going to try and get the maximum bang for your buck... so leaving people behind is probably inevitable.”

These accounts suggest that exclusion may operate less through formal barriers than through unequal access to relationships, confidence and informal sources of opportunity. Some participants argued that gender barriers were rooted less in innovation systems themselves and more in wider systems of support. Stephen questioned whether some diversity debates focus too narrowly on innovative businesses, pointing out that issues such as childcare access may represent more fundamental constraints on inclusivity and participation. Similarly, Abigail attributed the lower number of female founders partly to timing, arguing that academic spin-outs often occur during life stages associated with mortgages and childcare responsibilities. Participants also highlighted that underrepresentation can create additional burdens for those who do enter innovation spaces. Diane noted that women already succeeding in innovation often undertake additional unpaid mentoring and advocacy work, meaning that inclusion efforts can place further responsibilities on a small number of individuals.

Julie extended the issue of accessing networks to include class and educational background as a compounding factor, describing a “not for me attitude” that keeps working-class residents from putting themselves forward even where “they might have, perfectly, the opportunity and the skills.” Rachel gave the example of a particular place in North West where the biggest employers in manufacturing and a residential area with higher levels of deprivation were separated by a highway. Derek argued that digital-first innovation strategies may unintentionally disadvantage groups who have less confidence or access to digital technologies, creating a divide between those able to participate in new innovation models and those who are not. At the same time, Owen observed that a significant proportion of startups supported through their business support programme involved founders identifying as having a disability. According to him, this suggested that entrepreneurship may provide an alternative route into economic participation for some individuals who experience barriers within traditional employment.

Taken together, these accounts suggest that innovation produces broad regional benefits but does not distribute opportunities evenly. The implication is not that innovation fails to generate inclusive benefits, but that inclusion does not occur automatically. Without attention to capability, participation and access, innovation may reinforce existing differences in who has the resources and networks required to benefit from innovation-led regional growth.

Research Question 3: What characterises RIS that support inclusive innovations, and how can place-based policies strengthen these systems?

Our third research question focused on better understanding systems that support inclusive innovations. Our findings suggest that while inclusive innovations do not emerge from entirely separate innovation systems, they are supported within similar systems in different ways. The

examples of inclusive innovation that we studied draw on many of the same regional institutions and assets, including universities, colleges, local authorities, funders, business support organisations and innovation networks, but combine them around different objectives. Whereas conventional innovation systems tend to prioritise business growth, investment, and commercialisation, systems supporting inclusive innovation place greater emphasis on trusted local institutions, community partnerships, social value, and long-term relationships with people and places often underserved by mainstream markets.

Participants described diverse initiatives of social enterprises, community organisations, universities, further education colleges, local authorities, charities, and established firms. Despite their sectoral differences, these cases shared several characteristics. They are rooted in local needs, co-designed with beneficiaries, supported through cross-sector partnerships, and sustained by organisations embedded within their communities. Rather than relying solely on commercial investment, many were enabled through combinations of public funding, social investment, philanthropy, and community finance.

We organised diverse examples our participants covered in three broad models of inclusive innovation identified across the cases: problem-led and place-based innovation; anchor institution-led inclusive innovation and innovative funding and support mechanisms.

3.5 Problem-led and place-based inclusive innovation

A significant proportion of examples emerged from clearly identified social, economic, or spatial gaps that existing markets or institutions had not addressed effectively. These initiatives developed alternative models designed around the needs of particular communities or groups. In relation to the different types of inclusive innovations depicted in Box 1, problem-led and place-based inclusive innovation relates to the first one - a) specific targeting of products and services that meet the needs of excluded groups within the prioritisation.

Adrian was previously engaged in setting up an independent network coordinating small independent fibre providers into a unified voice that helped unlock billions of pounds of investment into UK broadband infrastructure. More recently, he worked for the foundation of an EV charge-point operator structured as a Community Benefit Society that is owned and controlled by the community rather than a commercial company. The society built a network of charging points in rural counties, specifically targeting smaller towns and villages that mainstream operators ignored as commercially uninteresting, funded through a mix of community investment and public money. Adrian explains that getting the model right took about six years of trial and error, aligning the regulatory, technical, and commercial sides at once. He credits local, co-designed control as the key to its success, built *with* the people who'd use and run it, rather than imposed from outside.

A related example came from Helen, who was part of a music and dementia initiative. As part of a regional orchestra's community outreach programme, she has worked with people living

with dementia for over a decade, alongside separate work with children and young people. The orchestra's dementia-focused model places participants at the centre as active music-makers rather than passive audiences. This inclusive innovation is implemented through a growing network of dedicated music cafes spanning a city region. Recognition as a national centre of excellence unlocked partnership funding that expanded this work considerably, also creating new musician jobs. The organisation is now looking to extend the same approach to people with Parkinson's and other mental health conditions, while acknowledging that scaling further remains complicated due to reliance on arts-sector funding and fragmented local authority functions related to health.

Rohan's experience, of founding a social enterprise, provides another example of problem-led inclusive innovation. It addresses inequalities in participation in physical activity of ethnic minority communities and in care homes. Through activity packages suited for different groups and processes of measuring and evidencing health impacts of their activities for funders, Rohan established a growing social enterprise that provides enrichment and health benefits for disadvantaged age and ethnicity groups.

Similarly, Edward described the social enterprise he was in the process of building (he had a funding meeting immediately after the interview). His enterprise aims to tackle homelessness and helping people acquire employment and enterprise skills and work experience all at the same time, at a fraction of the cost local authorities pay for accommodation only. Edward built a business model that assesses vacant properties to provide accommodation upstairs and a pub downstairs, enabling previously homeless people to access different types of support much more easily, while also working at the pub. The model, thus, sought to address multiple connected challenges by replacing temporary accommodation with a pathway towards longer-term independence. Although the participant was offering a cost effective solution to local authorities that are in his view at the brink of bankruptcy, he experienced barriers to thinking out of the box, obtaining support and investment with fair equity conditions.

These innovations that are led by our participants demonstrate that inclusivity can emerge through alternative organisational forms, from cooperatives and community organisations to social enterprises, that respond to needs overlooked by mainstream systems. Participants also mentioned initiatives that they did not lead but were inspired by. Laura described several established community assets in Blackburn, including Maker Rooms, that offer creativity and productivity opportunities to the wider population, youth zones providing facilities, support, and connections with local businesses, and refugee support services providing refurbished technology and assistance with employment and entrepreneurship. These examples connected and were embedded both in mainstream institutions and inequalities that such institutions overlook, built capabilities, confidence, and connections among groups who may otherwise struggle to access the agency created by innovation.

3.6 Anchor institution-led inclusive innovation

A second group of examples involve trusted public institutions and large businesses working towards widening access to innovation by using their resources, knowledge and local relationships. They are usually in the form of projects, programmes and initiatives rather than separate organisations, often combining existing resources in different ways, and/or reaching out to previously underserved businesses or communities. In relation to the different types of inclusive innovations depicted in Box 1, anchor institution-led inclusive innovation supports the first and third ones: specific targeting of products and services that meet the needs of excluded groups, and emphasis on community enterprise and excluded groups as innovators.

Paul described a partnership programme of further education colleges in an urban area in the North West. This project made use of the trusted position of colleges within local communities mostly through apprenticeship routes and aimed to engage businesses that had previously been disconnected from formal innovation support. Colleges' role as free, trusted local institutions was particularly important in areas experiencing lower productivity and social mobility challenges. The programme expanded apprenticeship-based connections and relationships to developing businesses through simple and regular events and materials. More than half of the businesses engaged had never previously worked with a college, suggesting that colleges provided an accessible route into innovation activity for organisations that might not respond to traditional innovation language or support offers. Paul explained that they intentionally avoided using high-tech innovation language but instead focused on practical themes such as "improving the ways of working", and "cutting costs".

Laura was engaged in a similar further education focused programme in a town in Lancashire. She was given a new, short-term role at a college, the funding for which was about to end at the time of the interview. Her job was to build relationships between the college and local entrepreneurs. For this role, she has knocked on doors, organised events at the college and connected with existing community initiatives she hadn't known about before. She became a trusted point of contact between the college and the wider business community. As her role was coming to an end, she was aiming to go further. She hopes to turn part of the college into a tech business hub, similar to ones in Manchester. Her reasoning is that almost every local business uses some technology today, even if it isn't a tech company. Her aim is for the college to become a permanent, trusted, easy-to-access place where local business owners can simply stop by for support.

Rachel described a local authority's inclusivity programme in the North West that was funded to support areas with high poverty and deprivation. Instead of organising training and support events in council buildings or town halls, or visiting neighbourhoods in council worker attire, the programme aimed to reach communities where they are and offer relevant skills rather than digital badges or passes, or abstract academic skills.

Julian described his organisation's empowerment programme, which enables around 2,000 school-age girls every year to meet employers in digital technologies sector across the region to increase awareness of careers in technology. By exposing young people to employers and

role models, the initiative aimed to address participation gaps before they become workforce inequalities.

A related example came from Barry in the nuclear supply chain, where efforts focused on attracting women who had previously left technical careers. Rather than relying solely on graduate recruitment, the organisation sought to reconnect with people who already possessed relevant experience but had exited the sector. A final example came from Edward's university-based entrepreneurship role. Through networking events, startup programmes, and initiatives such as a 'venture crawl', the North West university connected students, entrepreneurs, and communities while exposing young people from disadvantaged schools to entrepreneurial role models and regional innovation networks.

These cases demonstrate that inclusive innovation depends not only on developing novel solutions but also on combining existing resources in slightly different ways for widening access to the skills, networks, and opportunities required to participate in innovation systems. Public institutions and large businesses can contribute to inclusive innovation not only through funding but also by altering their products, services, or their engagement with society, or through new initiatives that position them as trusted bridges between innovation systems and groups that are otherwise excluded.

3.7 Innovative funding and support mechanisms

Some participants described innovation in the systems through which inclusive innovation is funded and enabled. This approach diverges from conventional innovation systems in its conduct of assigning funding.

Antonio, who works for an organisation that distributes philanthropic funds to charitable and community organisations, described a shift away from conventional approaches that required organisations to propose new projects in order to access this support. Instead, the organisation piloted unrestricted funding for established organisations with a strong track record, allowing them greater flexibility to respond to emerging needs in the ways they see fit. In this experimentation, they were still cautious. The funds they allocated this way to each organisation were relatively small and it still involved some paperwork and light touch communication on how the money was spent.

Julie described a related innovation in investment approaches for creative businesses through a shared success model. This portfolio-based approach provided smaller investments across a wider group of creative businesses, accepting that some would fail while others would generate returns. The model aimed to reduce dependence on short-term grants and build greater confidence among creative businesses.

These findings suggest that in addition to widening participation in and the distribution of benefits from innovation, inclusive innovations adapt some of the structures, practices and relationships through which innovation is supported, funded and valued. However, participants

also identified persistent barriers within wider support systems, including short-term funding cycles, rigid reporting requirements, competition between organisations for limited resources, and evaluation approaches that prioritised outputs over longer-term outcomes. These findings suggest that inclusive innovation requires not only funding new ideas but also redesigning the structures through which organisations are supported.

Table 5: Types of inclusive innovation, their supporting structures, and implications for place-based policy

Type of inclusive innovation	Characteristics of supporting structures	Implications for place-based policy
1. Problem-led and place-based inclusive innovation	Organised around specific unmet needs, excluded groups, or spatial gaps. Relies on local knowledge, community legitimacy, and context-specific solutions.	Design support around locally identified challenges. Enable communities and social enterprises to develop solutions through flexible funding, experimentation and long-term support.
2. Public institution-led inclusive innovation	Public and anchor institutions act as trusted intermediaries, connecting innovation systems with groups and organisations not reached through conventional support. Focuses on expanding who participates in innovation through skills pipelines, career pathways, workforce diversity and entrepreneurship access.	Support inclusion across the innovation pipeline, from education and aspiration through to recruitment, retention and entrepreneurship. Encourage organisations to address structural participation barriers.
3. Innovative funding and support mechanisms	Requires funding approaches that value flexibility, experimentation, social impact and resilience alongside commercial outcomes.	Expand patient capital, social investment and flexible funding models. Reduce short-term project cycles and evaluate wider social value alongside economic outcomes.
Shared themes	Inclusive innovation draws on the same regional assets as commercial innovation but applies them towards wider social and participation goals.	

Across all three areas, our findings suggest that inclusive innovations are often embedded in conventional innovation systems and philanthropic initiatives that provide them with different forms of support. This confirms the pattern noted at the outset of this section: inclusive innovations do not emerge from entirely separate innovation systems, but are supported within the same regional institutions and assets in different ways, organised around different objectives. At the same time, inclusive innovations have additional or different objectives. They identify overlooked needs, create access through trusted relationships, adapt support structures, and widen participation in innovation processes.

Many of the cases we studied revealed a shared vulnerability - that the sustainability of inclusive innovation often depends on precarious foundations. Edward struggled to secure investment on fair equity terms; Laura's role ended just as trust and relationships with local businesses were beginning to build; and Helen's programme, despite its recognised success, remained constrained by short-term arts funding and fragmented local authority health structures. Across these examples, inclusive innovations that succeed in identifying unmet needs and building trusted relationships frequently struggle to convert that success into stable, long-term support. This suggests that precarity is not incidental to inclusive innovation but a recurring feature of the systems that currently sustain it.

Systems that adequately support inclusive innovation are likely to require long-term investment in relationships, institutions, and capabilities rather than short-term incentives and interventions alone. Changes in conventional systems may be necessary. Edward's experience in particular is illustrative of a wider structural issue. Conventional equity investment models are often poorly suited to organisations pursuing social rather than purely commercial returns, and they may structurally exclude voluntary and social-enterprise organisations that lack shares to sell.

Our findings point to several implications for place-based policy. Strengthening inclusive innovation systems is unlikely to depend solely on increasing research funding or supporting high-growth firms. It requires investment in the intermediary organisations and collaborative infrastructures that connect innovation to communities. This also requires more flexible funding approaches that recognise social value, support experimentation over longer timescales, and enable organisations to build enduring relationships rather than deliver short-term projects. In particular, “access to finance” should not be treated as a uniform challenge across all organisations. While equity investment models may support some commercial ventures, they may structurally exclude voluntary and social-enterprise organisations that lack shares to sell, meaning that improved investment ecosystems alone will not address their capital constraints.

4. Conclusions

Our project approached RIS from an inclusivity perspective, examining through our first research question, the barriers to their emergence in places other than core regions and cities. This approach to RIS involves engaging both critically and re-constructively with the distributional effects of RIS at different spatial scales.

Our findings shed light on how innovation systems in the North East and North West of England are continuing to grow and establish distinctive strengths despite persistent structural and spatial challenges. Across both regions, we identify a range of important assets: a growing culture of collaboration, globally recognised technical capabilities, research-intensive universities, distinctive clean-energy resource advantages, and grassroots infrastructures that support wider inclusion. However, these strengths are not yet translating consistently into wider economic transformation with many participants associating this with uneven access to investment and markets. The central challenge for these regions is not a lack of innovation

capability, but the ability to mobilise, connect and scale innovation that generates broader economic and social value.

We saw similarities between our participants' accounts and observations and Markusen's (1996) seminal paper on stickiness and relevance of places in a world that is shaped at a higher scale with global forces and dynamics. Building on this, we incorporated the metatheoretical structure/agency axis from social theory to examine the development of RIS in greater depth, producing a two-layered conceptual model of structural forces and agentic potential, connected through feedback loops (Figure 1). This structure suggests the dynamic may be self-reinforcing. To give a few examples, weaker confidence and legitimacy can reduce the risk appetite as well as the number and success rate of funding applications. Similarly, relatively low level of public investment can result in brain drain, and various skills gaps can make it harder for the actors in the region to attract investment.

The resulting agglomeration dynamics are a strong, and from the perspective of inequalities, unforgiving force of economic geography. It is past and path-dependent, complex, emergent, combinatorial outcome of both structural and agentic factors and inclinations that accompany and either accelerate or decelerate the sheer forces of scale and diversity both in economic actors and entities, and in actions and activities.

North West and North East England had their share of global impact on their economy, and within ideologies of long term equilibrium and trickle-down, they were not left behind, but rather left without - without sufficient agency or support – in some places more than others. Our participants pointed out that businesses that face persistent risks of “being in the red” find it difficult to spare time, resources and attention for innovation, and marginalised communities in both urban and rural areas who assume shiny research excellence buildings or high-income technical careers cannot be for them. The impostor syndrome, the “I am just a” identities that our participants frequently observe are clear manifestations of agency that is constrained by structured inequalities.

Inequalities also connect to our second research question, which focused on the inclusivity of existing regional innovation systems (RIS) in the North West and North East of England. The diverse group of participants we interviewed had not necessarily previously articulated their experiences in terms of who is able to access, and who may be excluded from, the innovation systems in which they participate. However, the interviews provided an opportunity for participants to reflect on these distributional dynamics and to consider how participation is shaped within existing networks and structures. Across the interviews, participants identified a tendency towards predominantly male, white-collar-led innovation systems and networks. This represents both a challenge, highlighting the need to broaden participation and accessibility, and an opportunity to strengthen regional innovation capacity by engaging a wider range of people, perspectives and capabilities.

This has important implications for the stickiness of regional innovation systems. If reachable scale is a structural condition underpinning the ability of places to retain and attract knowledge, markets and actors, then inequalities in participation can further constrain that scale. For regions already positioned away from major economic cores, such as the North East and North West of England, and where significant internal inequalities exist between urban centres and more remote communities, unequal access to innovation networks may compound existing constraints on reachable scale. By limiting who participates in innovation systems, which knowledge is connected, and which communities and capabilities become visible to wider networks, inequalities can reduce the effective pool of actors and resources that regions are able to mobilise, thereby weakening the conditions needed for innovation systems to become more sticky.

In this regard, addressing inequalities through the approaches highlighted in recent literature — including a stronger focus on the foundational economy, investment in skills and the development of inclusive innovation practices — may have important implications for the long-term stickiness and resilience of regional innovation systems. Rather than viewing inclusion as separate from innovation performance, these approaches suggest that widening participation and strengthening everyday economic and social infrastructures can expand the range of capabilities, knowledge and actors available within a region. In turn, this can increase the reachable scale of the innovation system by creating stronger connections between communities, firms, institutions and markets that may otherwise remain disconnected.

This opportunity formed the focus of our third research question, which examined the systems, practices and intermediaries that support inclusive innovation. Understanding how such systems operate is important because the capacity of regions to retain and mobilise innovation assets depends not only on existing institutions and economic strengths, but also on whether diverse groups and places are able to participate in, contribute to and benefit from innovation processes.

Our findings suggest that inclusive innovators do not yet have different innovation systems, but they are not passive within existing regional innovation systems that developed around commercial innovations. Rather, they actively develop alternative pathways to move their innovative initiatives forward. These adaptive strategies demonstrate significant agentic potential, as actors navigate and reconfigure existing systems. Some funders and intermediaries have already responded by developing more flexible and accessible approaches, with simpler, less bureaucratic models of support that resemble micro-credit principles: trust-based, targeted interventions enabling experimentation and early-stage innovation. However, such pathways often remain fragmented and reliant on individual effort rather than being embedded within supportive institutional structures. More substantial institutional change may be required to fully unlock regional innovation potential. In particular, recognising the distinctive nature of inclusive innovation requires new approaches that move beyond conventional models of innovation support and create conditions where a wider range

of actors, places and forms of knowledge can participate in shaping regional innovation trajectories.

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