NICRE
National Innovation Centre
Rural Enterprise

NICRE Submission to Green Paper 'Invest 2035: The UK's Modern Industrial Strategy'

November 2024

Introduction

The National Innovation Centre for Rural Enterprise (NICRE) undertakes research and knowledge exchange to inform policy, foster the innovation and resilience of rural businesses, and unlock the potential of rural economies across the UK. It is funded by Research England and founding University Partners, with in-kind support from many public, business and third sector organisations. NICRE builds on three leading centres of expertise: the Centre for Rural Economy and Newcastle University Business School, the Enterprise Research Centre at the University of Warwick, and the Countryside and Community Research Institute at Gloucestershire and Royal Agricultural Universities. Strutt & Parker property consultants is its founding national professional business service partner. Further information is available at: https://nicre.co.uk/. This short submission has been compiled based on evidence and insight from NICRE, together with inputs from NICRE's Rural Business Beacon network.

NICRE's overall response

Achievement of the Industrial Strategy's sector and place focused ambitions will only be fully achieved and strengthened by expanding the Green Paper's emphasis on "growth opportunities in city regions and clusters" and "potential in our cities, regions, and nations", to recognize the contribution of the nation's rural economies to growth and innovation. The foundation for this requirement lies in the Government's own central mission to "kickstart growth, restore economic stability and make every part of our country better off", and to create wealth "in every community".

To fully deliver its objectives, the Industrial Strategy will need to address wider, major cross-cutting economic drivers, capabilities, and opportunities, which includes fully utilizing the diversity, spatial reach and sectoral strengths of the nation's rural economies.

Rural economies bring a range of distinctive contributions and comparative advantages to wider regions and the nation as a whole, as well as a basket of solutions for economic renewal. There are 600,000 registered business units in rural areas in England alone, employing 4.2 million people. They make up a quarter of businesses and contribute over £315 billion to the economy, with their supply chains, workforces and innovations reaching well beyond rural areas. They contain considerable diversity in enterprise scale, sector and performance, with many creating high-value, advanced or internationally-traded products or services, and with the expansion and productivity of many firms boosted from operating from a rural location.

The Rural Coalition estimates that if rural productivity was equivalent to the ratio of rural to non-rural productivity in the G7, rural England would generate £42 billion more than it does now[1]. This compares to the Centre for Cities estimate of £47 billion per year, cited in the Green Paper, of the combined gap between actual and potential productivity for the eight largest cities outside London.

It follows that visibly recognising and nurturing the contribution and potential of the nation's rural economies and their extensive interrelationships with wider regions and urban areas is a vital ingredient to a successful industrial strategy. If suitably supported, they can contribute to wider regional and national growth and prosperity, and responses to environmental or place-based challenges. The industrial strategy therefore needs to develop a more inclusive and positive vision of the contribution that all types of places and sectors can make.

Question 1: How should the UK government identify the most important subsectors for delivering our objectives?

The Government's identification of sector and sub-sector priorities should reflect locally-driven and identified development needs and opportunities, and sector choices that are flexible and reflective of local economic specialisms and assets.

If they are to succeed, sub-sector support initiatives and plans will need to actively demonstrate their inclusive, spatial reach, in order to reflect the geographical spread and place based context of associated businesses and supply chains.

All of the priority sectors identified in the Green Paper have a **substantial rural footprint**. This is demonstrated by Defra data[2] and NICRE's own in-house analysis (Table 1) of the Business Structure Database for selected sectors and sub-sectors in England. For example, businesses in rural areas account for 25% of manufacturing business units and 22% of manufacturing employment. In many cases, and particularly across several Advanced Manufacturing and Medium-advanced Manufacturing sub-sectors, they contribute more than this average share in the economy. Firms in rural areas contribute significant proportions of businesses in all three Advanced Manufacturing sub-sectors, for example 22% of business units in computer, electronic and optical products, 29% of business units in the air and spacecraft sub-sector and 21% of employment in pharmaceutical products and preparation.

In Professional, Scientific and Technical Services 21% of business units and 13% of employment is rural. This includes, for example, 24% of business units and 31% of employment in scientific research and development. In Finance, 14% of business units and 5% of employment is rurally based. As for the creative industries, we estimate the rural economy accounts for 16% of business units and 10% of employment in this sector, with some sub-sectors having a strong presence in rural areas, such as book publishing, architectural activities, photographic activities and artistic creation. Similarly, the rural economy contributes significantly to the defence sector. A third of businesses and a fifth

[1] Pragmatix (2024) Reigniting rural futures: rural communities' capacity to boost economic growth. A report for the Rural Coalition reigniting-rural-futures-summary-report.pdf
[2] Defra (2024) Rural Economic Bulletin - GOV.UK

of employment in defence activities locate in rural areas, as well as 39% of businesses engaged in the manufacture of weapons and ammunition.

As the Life Sciences and Clean Energy sectors are not easily identified in the standard industrial classification these are not included in the Table 1. However a significant proportion of these sub-sectors' business units and employment are rurally based.

Similar analysis at a local and combined authority level should be undertaken to inform the choice of sub-sectors and to build on local specialisms and comparative advantages in these and other sectors.

Sector or sub-sector strategies need to explicitly recognize the spatial distribution and geographical context of their constituent businesses and supply chains and tailor their approaches accordingly to the particular growth challenges and opportunities that are presented by a business environment characterised by sparsity and physical/digital distance and challenges around access to knowledge, markets, labour, support services and capital.

Table 1: Examples of selected sub-sectors and their significance in rural areas

	Share of business units that are rural	Share of jobs that are rural
Manufacturing		
Advanced Manufacturing sectors		
C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	17%	21%
2110 Manufacture of basic pharmaceutical products	16%	30%
C26 Manufacture of computer, electronic and optical products	22%	21%
2670 Manufacture of optical instruments and photographic equipment	22%	27%
C30.3 Manufacture of air and spacecraft and related machinery	29%	25%
Medium-advanced Manufacturing sectors		
C20 Manufacture of chemicals and chemical products	19%	17%
2012 Manufacture of dyes and pigments	12%	38%
2015 Manufacture of fertilizers and nitrogen compounds	45%	43%
2051 Manufacture of explosives	36%	43%
C27 Manufacture of electrical equipment	22%	18%
C28 Manufacture of machinery and equipment n.e.c.	22%	19%
2822 Manufacture of lifting and handling equipment	20%	29%
2830 Manufacture of agricultural and forestry machinery	41%	41%
C29 Manufacture of motor vehicles, trailers and semi-trailers	29%	26%
2910 Manufacture of motor vehicles	25%	30%
C30 Manufacture of other transport equipment	28%	24%
3012 Building of pleasure and sporting boats	42%	31%
Creative Industries		
3212 Manufacture of jewellery and related articles	15%	13%
5814 Publishing of journals and periodicals	20%	8%
5811 Book publishing	20%	9%
5819 Other publishing activities	18%	10%

5812 Publishing of directories and mailing lists	25%	15%
602 Television programming and broadcasting activities	16%	5%
7021 Public relations and communication activities	17%	9%
7111 Architectural activities	21%	13%
7311 Advertising agencies	16%	8%
7312 Media representation	16%	7%
7420 Photographic activities	18%	18%
7410 Specialised design activities	18%	16%
9003 Artistic creation	20%	19%
9101 Library and archive activities	23%	13%
9102 Museum activities	22%	18%
Defence		
2540 Manufacture of weapons and ammunition	39%	9%
8422 Defence activities	33%	22%
Digital and Technology		
58.29 Other software publishing	18%	10%
61 Telecommunications	15%	7%
62 Computer programming, consultancy and related activities	15%	10%
63 Information service activities	14%	7%
Financial Services		
64 Financial service activities, except insurance and pension funding	11%	3%
66 Activities auxiliary to financial services and insurance activities	16%	7%
Professional & Business Services		
69 Legal and accounting activities	13%	7%
70 Activities of head offices; management consultancy activities	22%	14%
71 Architectural and engineering activities; technical testing and analysis	23%	16%
72 Scientific research and development	24%	31%
77 Rental and leasing activities	27%	22%
80 Security and investigation activities	12%	9%
81 Services to buildings and landscape activities	23%	15%
82 Office administrative, office support and other business support activities	17%	13%

Question 2: How should the UK government account for emerging sectors and technologies for which conventional data sources are less appropriate?

Selection of emerging sub-sectors and technological priorities should be reflective of devolved, locally and regionally driven opportunities and specialisms. It should particularly recognise the vital role that micro and small businesses play in their development, and which in rural areas account for higher share of employment in registered businesses[3].

Question 3: How should the UK government incorporate foundational sectors and value chains into this analysis?

As the primary stewards of land and natural resources, land based and agri-food enterprises should be strongly recognised in the industrial strategy as quintessential

[3] Defra (2024) Rural Economic Bulletin - GOV.UK

foundational sectors which underpin extensive supply chains of firms and jobs across cities and towns, as well as rural communities. They provide essential consumer and ecosystem services that benefit the resilience of both rural and urban areas – flood management, river and water quality, energy generation and transmission, food and recreational resources. Land based businesses are furthermore key for the drive to Net Zero and reduced carbon emissions through their renewable energy provision, carbon capture and storage.

These businesses and sectors are the primary suppliers and stewards of wood/ timber, water and energy related products and services. For instance, water is utilised for drinks, disease prevention, as ingredients or coolants for energy intensive manufacturing, construction, energy production, farming, hospitality and healthcare, for leisure and conservation etc. And rurally produced energy (whether from major rurally-located power stations or onshore winds farms) serves almost every imaginable business and home use.

The food sector itself is a foundational industry with significant potential for growth. Food and Drink Manufacturing is one of the biggest manufacturing sectors in terms of business stock (9% of manufacturing businesses) and employment (17% of manufacturing employment). It has significant potential for developing and applying new technologies including robotics, bio-science, and digital innovations. This is increasingly important with ongoing geopolitical instability and labour shortages in key sub-sectors.

Sectors providing other foundational infrastructures and services that create the enabling environment for businesses, workforces, key sectors and clusters to thrive should also feature in the scope of the Industrial Strategy. It is clear that enterprise start-up, business growth, and growing employment opportunities have to be matched by accompanying housing, infrastructure, schools, health provision, transport etc, as part of a holistic approach to place making.[4] .

NICRE research[5] finds that 34% of rural enterprises judge their broadband quality to be 'poor' or 'very poor', compared to 20% of urban enterprises. Rural businesses are almost twice as likely as urban businesses (36% vs 19%) to rate their transport infrastructure as 'poor' or 'very poor'. Public transport is rated 'poor' or 'very poor' by 57% of rural firms and 21% of urban firms, and 49% of rural firms judge the availability of affordable housing in their local area to be 'poor' or 'very poor', compared to 30% of urban firms. And similar proportions of rural firms gave their local basic services (e.g., banks and post offices) the lowest ratings, with 50% judging them 'poor' or 'very poor' compared to 30% of urban firms. The evidence points to key structural factors which have a role to play in enabling long term adaptation and development of rural business, and the need to address the breadth of rural infrastructure deficits in order to release rural growth. Reducing these differences would start to close the differences in productivity between urban and rural and start to create the £42 bn of economic activity mentioned previously.

[4] Engaging Rural Enterprise. Our Future Towns: Community Place Making and Community Planning. NICRE Report. www.rca.ac.uk/research-innovation/projects/EngagingRural-Enterprises-in-community-placemaking-and-transport-planning

[5] NICRE (2022) Infrastructure and networks: rural enterprises and the Levelling Up agenda, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No.2. nicre-state-of-rural-enterprise-report-no-2-may-2022-infrastructure-and-networks-rural-enterprises-and-the-levelling-up-agenda.pdf

Finally, social enterprises should also be recognised within the strategy as an important type of foundational business and part of the UK's economy – generating £60bn of GDP per year and creating 2.3 million jobs across the UK[6]. In addition to their economic contribution, social enterprises drive wider social and environmental transformation, adding value to other key national missions. Although variously defined and measured, around 8% of small businesses across the UK are social enterprises[7].

Enterprises in rural areas are more likely to be social enterprises than in urban areas. In total, 34% of all social enterprises are found in rural areas. Rural social enterprises are particularly concentrated in health, arts/entertainment, and primary sectors (e.g. agriculture). They often address rural community needs where there are shortfalls in both public and private sector service provision[8].

The supportive ecosystem for rural social enterprises is patchy and perceived to be insufficient across much of the UK, despite many individual policy elements being in place and evidence of more 'joined up' support, pooling of resources and collaboration in some localities. There is an opportunity to strengthen the framework of support for all social enterprises to grow and thrive through the Industrial Strategy, drawing on these local examples as well as the experience of Scotland, which is recognised as having a stronger tradition of social enterprise and policy that enables this.

Question 4: What are the most important subsectors and technologies that the UK government should focus on and why?

Adopting a holistic, multi-sector focus around growth and investment of businesses, at both national and local level, will be vital to realising the nation's economic ambitions, including focussing on releasing growth of businesses located in rural areas.

In general, agri-tech and sustainable agriculture is clearly important for rural areas. Agri-tech innovations, such as precision farming, drone technology, and automated machinery, can enhance productivity and sustainability while addressing challenges like labour shortages and climate change. This provides opportunities to produce higher yields with fewer inputs. Moreover, the potential for developing vertical farming or regenerative farming practices may enable opportunities for exporting UK agricultural innovations.

We agree with the emphasis on clean energy sectors. In these sectors rural areas play a significant part. Rural areas often have access to natural resources like wind, solar, and biomass, making them ideal for renewable energy projects and supporting the

[6] Home | Social Enterprise UK
[7] LSBS data cited in nicre-research-report-no-12-november-2022-rural-social-enterprise-contributions-challenges-and-support-needs.pdf
[8] Rural Social Enterprise: contributions, challenges and support needs. NICRE Research Report No 12. nicre-research-report-no-12-november-2022-rural-social-enterprise-contributions-challenges-and-support-needs.pdf

Government's energy transition mission. NICRE has found businesses in rural areas are relatively more positive concerning environmental technologies..[9]

An analysis based on three English rural counties[10] found two groups of promising clusters located in rural areas. The first were clusters which included high levels of productivity per employee including bioscience and life sciences and electricity in Cumbria. The second were clusters which had a high proportion of new and small firms in the cluster and attracted the highest proportion of venture and equity finance. These clusters in rural areas included sub-sectors such Autonomy and Robotics, Clean Technology, Design and Modelling Technologies, Digital Creative Industries, Energy Generation, In-Orbit Space Manufacturing, Modular Construction Software Development and the Streaming Economy.

Rural areas provide the necessary supporting conditions for these sub sectors. They have access to raw materials and space to expand. This also makes them suitable for processing and manufacturing in sub-sectors such as high-quality food and drink products, creating value-added products (e.g., cheese, craft beer, organic products). Brands can be built around local or regional food identities (e.g., Yorkshire tea, Cornish pasties). Scotch Whisky is an obvious example, as well as English Cheeses and Gin providing export revenue to the UK. Protected food names (geographical indications) can also help producers add value and support export led growth..[11]

Question 5: What are the UK's strengths and capabilities in these subsectors?

For Agri-Tech and Sustainable Agriculture, strengths include the existing expertise in agricultural practices and experimentation with new technologies like precision farming and drones and potential for global leadership in vertical and regenerative farming innovations. Capabilities have developed due to emerging networks between research institutions and rural businesses to trial new technologies and there may be potential for partnerships between agri-tech firms and rural communities to address labour shortages and enhance productivity.

For Clean Energy and Environmental Technologies, abundant natural resources such as wind, solar, and biomass make rural areas prime locations for renewable energy projects, with positive entrepreneurial attitudes in rural areas toward environmental technologies (as identified by NICRE). Existing innovation clusters (e.g., electricity in Cumbria) provide a foundation for scaling clean energy initiatives. Moreover, some regions have a well-developed renewable energy infrastructure in certain regions and committed government and private sector resources.

[9] NICRE (2024) The rural economy post-pandemic: opportunities and barriers for business growth, State of Rural Enterprise Report No 6. https://nicre.co.uk/media/1j1byg5r/nicre-state-of-rural-enterprise-report-no-6-january-2024-the-rural-economy-post-pandemic-opportunities-and-barriers-for-business-growth.pdf

[10] Mole K (2024) A Computational Taxonomy of Rural Innovation Clusters, Paper presented at the Institute for Small Business and Entrepreneurship conference, Sheffield, 6-7th November

[11] Raimondi, V., Falco, C., Curzi, D. and Olper, A. (2020) Trade effects of geographical indication policy: The EU case, Journal of Agricultural Economics, Vol. 71 No. 2, pp. 330-356.

For the High-Value Clusters identified in bioscience, life sciences, and energy generation, the value creation proposition is convincing. Other clusters based on new and smaller firms such as clean technology, robotics, and modular construction, benefit from strong and equity finance activity, another UK strength. There is a need to nurture small and emerging businesses through targeted cluster policies and innovation hubs[12].

In Food and Drink Manufacturing there are many strong British brands and product categories (e.g., whisky, salmon, gin etc.), albeit many food and drink firms are not highly productive and need to make use of the UK's innovative offer. These subsectors also offer export opportunities. Involving more businesses in international markets and marketing increases the capabilities in firms.[13] Moreover, consumer demand for artisanal and organic products is increasing domestically and internationally, alongside opportunities for short food supply chains as an opportunity for adding value[14].

For developing Manufacturing and Space-Related Technologies clusters in areas like in-orbit space manufacturing and autonomous robotics there is potential for cross-sectoral innovation linking these technologies with rural challenges, such as agricultural robotics. These have strong collaboration. as shown by the innovation clusters with DSIT. Moreover, engagement with business customers and venture capital is evident.

Question 6: What are the key enablers and barriers to growth in these subsectors and how could the UK government address them?

NICRE evidence points to significant new rural opportunities for growth[15]. However, developing sectors in rural areas of the UK requires balancing the unique strengths and opportunities of rural environments with the need to address local challenges like limited infrastructure[16], workforce shortages[17], or access to markets.

NICRE evidence points to significant new rural opportunities for growth which should be fully harnessed in the Industrial Strategy through a strategic cross-sector approach to

[12] Merrell, I., Phillipson, J. and Gorton, M. (2022) Enterprise hubs to support rural development, NICRE State of the Art Review No. 5. nicre-sota-no-5-august-2022-enterprise-hubs-to-support-rural-development.pdf

[13] Love, J.H. and S. Roper (2015) *SME innovation, exporting and growth: A review of existing evidence.* International small business journal. **33**(1): p. 28-48.

[14] NICRE (2024) Farm business performance, marketing and adaptation strategies, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 8. nicre-state-of-rural-enterprise-report-no-8-may-2024-farm-business-performance-marketing-and-adaptation-strategies.pdf

[15] NICRE (2024) The rural economy post-pandemic: opportunities and barriers for business growth, State of Rural Enterprise Report No 6. https://nicre.co.uk/media/1j1byg5r/nicre-state-of-rural-enterprise-report-no-6-january-2024-the-rural-economy-post-pandemic-opportunities-and-barriers-for-business-growth.pdf

[16] NICRE (2022) Infrastructure and networks: rural enterprises and the Levelling Up agenda, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No.2. nicre-state-of-rural-enterprise-report-no-2-may-2022-infrastructure-and-networks-rural-enterprises-and-the-levelling-up-agenda.pdf

[17] NICRE (2024) Labour and skills availability: impacts on rural enterprise, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 7. nicre-state-of-rural-enterprise-report-no-7-february-2024-labour-and-skills-availability-impacts-on-rural-enterprise.pdf

rural growth[18]. Significant proportions of businesses in rural areas perceive local opportunities for business development, which is the critical starting point for entrepreneurial activities that can lead to growth and productivity improvements. This includes 47% which see opportunity for providing services and products that improve health and wellbeing, 44% which see opportunity for providing environmental / green services and products, 27% which see opportunity around improving data skills and use of data, and 37% which see opportunity around expanding opportunities for tourism. Rural firms are more focused than urban firms on environmental / green products and services.

There are key challenges at the community or area level which need to be addressed because they directly affect the business and workforce environment, impacting growth and investment. Staff recruitment and retention is a principal challenge. Moreover, in many rural places key barriers take the form of too little affordable housing, poor public transport for commuting, and weaker physical and digital connectivity - 40% of rural firms that felt well placed to take advantage of opportunities highlight the lack of affordable housing locally as a key barrier (33% urban), 39% flag lack of transport services and infrastructure (26% urban), and 33% inadequate broadband capacity (25% urban). A lack of financial resources and planning restrictions are also key for both urban and rural firms. At the regional level, the ability to recruit and retain staff as a constraint was more commonly cited by rural firms in the South West and West Midlands. North East rural firms were more likely to emphasise lack of financial resources. Rural firms in the South West highlight local housing costs and lack of local transport services. In the West Midlands they emphasised lack of available business premises and planning restrictions.

Considering the needs and barriers for clusters to grow shows that different policies and interventions may be needed for different types of clusters. For established firms in clusters of bioscience and life sciences, and the energy sector, policies should support their growth and scaling efforts. This includes providing funding, mentorship, and access to larger markets to facilitate expansion. Additionally, enhancing the financial awareness of these clusters to enable access to capital may support further development. Other firms in developing clusters such as Autonomy and Robotics, Clean Technology, Design and Modelling Technologies, Digital Creative Industries, Energy Generation, In-Orbit Space Manufacturing require a different approach. Their development might be furthered with the creation of entrepreneurial ecosystems, including establishing resources like incubators, accelerators, networking and co-working spaces to support start-ups[19] and cluster development. Additionally, connecting start-ups with investors and creating networks for mentorship and growth can leverage venture capital investments.

[18] NICRE (2024) The rural economy post-pandemic: opportunities and barriers for business growth, State of Rural Enterprise Report No 6. https://nicre.co.uk/media/1j1byg5r/nicre-state-of-rural-enterprise-report-no-6-january-2024-the-rural-economy-post-pandemic-opportunities-and-barriers-for-business-growth.pdf

[19] Amezcua, A.S., et al. (2013) *Organizational Sponsorship and Founding Environments: A Contingency View on the Survival of Business-Incubated Firms, 1994–2007.* Academy of Management Journal. **56**(6): p. 1628-1654.

Question 7: What are the most significant barriers to investment? Do they vary across the growth-driving sectors? What evidence can you share to illustrate this?

The majority of rural and urban firms that feel 'well placed' to take advantage of local development opportunities are planning to invest in new products and services, marketing and advertising, employee health and wellbeing and skills training. However, these investment plans are held back by key barriers[20], which include, in order of significance: difficulties in recruiting and retaining staff; lack of financial resources; lack of availability of affordable housing, lack of transport services and infrastructure; planning restrictions; inadequate broadband capacity; and lack of availability of business premises.

Question 8: Where you identified barriers in response to Question 7 which relate to people and skills (including issues such as delivery of employment support, careers, and skills provision), what UK government policy solutions could best address these?

National and local skills strategies and plans should fully reflect the particular cross-cutting drivers which impact workforce needs and challenges in rural economies.[21] Recruitment and retention of staff is a chief constraint for rural and urban firms, with slightly more rural than urban businesses facing this challenge (Rural 52%, Urban 46%). These challenges are leading to delays in the development of new products or services, impinging on the introduction of new technologies or working practices, and ultimately imposing a direct restriction on growth. For businesses reporting these difficulties, a limited local pool of suitable labour is cited as the most common cause, and this was especially so for rural businesses. Low wage levels and a lack of suitable apprenticeships or training are the next two most common reasons, with urban businesses more likely to highlight these issues. However, rural enterprises' staffing challenges appear to be particularly multi-faceted. They are much more heavily impacted by weaknesses in local services and infrastructure provision, notably a lack of affordable housing and poor public transport for staff.

There is a need to develop support and advice provision to help small and micro-businesses to tackle their recruitment challenges, including to develop different recruitment approaches, in-house training provision, and access to apprenticeships, as well as support for collaborative approaches and solutions between groups of firms.[22].

Question 9: What more could be done to achieve a step change in employer investment in training in the growth-driving sectors?

Driving growth in skill formation requires to some extent similar factors as the development and growth of clusters in advanced manufacturing and related services,

[20] NICRE (2024) The rural economy post-pandemic: opportunities and barriers for business growth, State of Rural Enterprise Report No 6. https://nicre.co.uk/media/1j1byg5r/nicre-state-of-rural-enterprise-report-no-6-january-2024-the-rural-economy-post-pandemic-opportunities-and-barriers-for-business-growth.pdf

[21] NICRE (2024) Labour and skills availability: impacts on rural enterprise, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 7. nicre-state-of-rural-enterprise-report-no-7-february-2024-labour-and-skills-availability-impacts-on-rural-enterprise.pdf

[22] Attracting and retaining workers in the Derbyshire Peak District. Policy Briefing. nicre-policy-briefing-attracting-and-retaining-workers-in-the-derbyshire-peak-district.pdf

discussed above. These include local infrastructure, transport etc. In addition, there is an open question whether the existing apprenticeships provide the right offer for businesses who want to hire and train their own skilled staff. The demand for new skills has to be met by supply. Skilled jobs in the bio-economy and wider land use transition related to clean growth are also a particular opportunity to be developed in land based and non-land based sectors in rural areas, as well as further development of digital skills linked to data use, sharing and AI.

Question 10: Where you identified barriers in response to Question 7 which relate to RDI and technology adoption and diffusion, what UK government policy solutions could best address these?

Data from the Innovation State of the Nation Report[23] indicates a positive correlation between corporate innovation activities and investment in R&D, patents, training, product design, market research, and development. This study found that intervening in those facilitators is one way to encourage creativity in rural areas. On a national (UK) scale, many types of innovation aid exist in the form of financial or non-financial support that is directly tied to innovation enablers, such as R&D tax credits, innovation grants, and intellectual property protection.

Firms in higher performing regions are more open to seeking external advice and therefore advice in business development and product and service development can be effective for supporting innovation.[24]

This highlights two critical challenges facing the government's ambition to "harness R&D investment to build strong regional innovation ecosystems", to quote the green paper. One is how such strengthening can be achieved. The other is closing the innovation gap between large and smaller enterprises. A range of low-cost policy options are relevant here:

First, mapping local investment opportunities would help reveal weaknesses in commercialisation pathways and show how university research might connect with local businesses. The Department for Science, Innovation and Technology has already done valuable work to understand the geography of technology clusters across the UK. This mapping could be developed to include the infrastructure that supports research commercialisation and the scaling up of small companies, creating a national resource to inform devolved innovation strategies.

Second, to succeed, devolved innovation strategies need more support for capacity building in local policymaking. The University of Birmingham's recently established Local Policy Innovation Partnership Hub and Innovate UK's Net Zero Places Innovation Network are good examples of how to share the lessons of local innovation policy. The Manchester Institute of Innovation Research also provides world-leading capacity-

[23] https://ircaucus.ac.uk/publications/innovation-in-micro-businesses-evidence-from-the-innovation-state-of-the-nation-2023/
[24] https://innovation-research-caucus-uploads.s3.amazonaws.com/production/uploads/2024/03/IRCP00010-ISNS-Barriers-and-Enablers_FINAL.pdf

building courses in innovation policy. Expanding and integrating these capabilities could support innovation policymakers in combined authorities and local authorities.

Third, facilitating local peer-learning networks of firms would help spread digital technologies and managerial expertise. Prosper Scotland's Peer Works programme of facilitated meetings is a proven model that could be extended across the UK.

Finally, there is strong evidence that local and sectoral innovation policy measures, often targeted at smaller firms, are an excellent proving ground for wider efforts. For example, firms that work with Innovate UK's Catapult centres are more likely to win national innovation grant support. Likewise, small firms with innovation support from Invest Northern Ireland are more successful in national grant competitions.

In rural areas, due to lower levels of interaction and less accessibility to urban knowledge centres, innovation and technology diffusion is slowed[25]. Skilled labour availability may also be more difficult to access in rural areas and also having a detrimental impact on technology acceptance and use[26]. The paradox is that rural areas require the most advanced digital connectivity to compensate for their remote location, but they are the least connected and included[27]. Enhanced digital connectivity is critical both in building rural innovation and business resilience[28].

Tackling these issues requires a more dedicated and tailored focus within the UKRI and Innovate UK provision and support to connect to businesses located in rural areas. This should include the development of an innovation system that supports place-based approaches, participatory innovation, co-design, and porous innovation ecosystems, to ensure innovation support is highly accessible to all, including rural, businesses and to encourage better integration of end users at design/early development stages.

Question 11: What are the barriers to R&D commercialisation that the UK government should be considering?

The Innovation Research Caucus, funded by UKRI, of which one of NICRE's partners is part, has conducted extensive work on the barriers to R&D commercialisation. The UK government faces several challenges in facilitating the commercialisation of Research and Development (R&D), particularly in bridging the gap between innovation and market readiness. Typical barriers include the limited long-term investment available for highly

[25] Roper, S., & Jibril, H. (2024). Understanding the geographical distribution of innovation in England: density, accessibility and spillover effects. *Regional Studies*, *58*(6), 1320-1338. https://doi.org/10.1080/00343404.2023.2252900

[26] NICRE (2024) Labour and skills availability: impacts on rural enterprise, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No 7. https://nicre.co.uk/media/ilwdzxhg/nicre-state-of-rural-enterprise-report-no-7-february-2024-labour-and-skills-availability-impacts-on-rural-enterprise.pdf

[27] Salemink, K., D. Strijker, and G. Bosworth, *Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas.* Journal of Rural Studies, 2017. **54**: p. 360-371.

[28] NICRE (2021) The effects of the Covid-19 pandemic on rural businesses: experiences and resilience, National Innovation Centre for Rural Enterprise, State of Rural Enterprise Report No.1. https://nicre.co.uk/media/3fcf35ls/nicre-state-of-rural-enterprise-report-no-1-january-2022-the-effects-of-the-covid-19-pandemic-on-rural-businesses-experiences-and-resilience.pdf

innovative firms and weak industry-academia collaboration, particularly for UK-owned firms due to mis-aligned incentives. Indeed, universities often underutilise intellectual property (IP), and licensing systems are complex. Above all business skills among researchers to bring innovations to market are lacking. Infrastructure needs investment too to create accessible facilities for scaling and testing innovations, such as 'wet labs'. For rural areas the gaps in broadband and 5G access hinder deployment of tech-heavy solutions. Moreover, the UK has a geographical and sectoral uneven distribution of innovation hubs and investment.

Question 16: What are the barriers to competitive industrial activity and increased electrification, beyond those set out in response to the UK government's recent Call for Evidence on industrial electrification?

Rural electrification is a key agenda for the Industrial Strategy to tackle. Rural areas are key sites of electricity generation, however ongoing research funded by Rural England and NICRE is highlighting challenges in rural areas in transitioning to new electric-based technologies, such as heat pumps and vehicle-charging points. The challenges include retrofitting new technologies to older buildings and infrastructure provision in areas of low population density. Experience to date suggests that different rural areas are already making this essential transition, but that experience is variable, and the underlying drivers are not well understood[29]. A range of technologies for generating electricity – solar panels, micro-hydrogeneration, wind turbines - are readily available in the market, as well as devices for domestic heating – heat pumps, electric radiators – and mobility – electric cars, vans, and bikes, and more recently batteries to store energy. However a more strategic response is needed to support electrification of rural communities with sustainably produced power. Some of the key issues to be further understood and tackled include addressing barriers to electrification of rural households, particular challenges for Off-Gas Grid Households, and issues posed by the capacity and fragility of the electricity networks serving rural areas.

Question 21: What are the main factors that influence businesses' investment decisions? Do these differ for the growth-driving sectors and based on the nature of the investment (e.g. buildings, machinery & equipment, vehicles, software, RDI, workforce skills) and types of firms (large, small, domestic, international, across different regions)?

Selection and design of future Investment Zone type intervention should be widened. Rural as well as city areas do and can attract inward investment and support industrial diversity and growth. Such negotiated targeting would enable rural areas and enterprises to engage with, contribute to and benefit from these measures[30].

Successful enterprise zones or geographical clusters have been seen to grow and develop around certain anchor businesses. These are businesses, often in innovative sectors such as precision engineering, pharma, defence, scientific research and

[29] https://www.nesta.org.uk/data-visualisation-and-interactive/one-year-in-what-effect-has-the-boiler-upgrade-scheme-had/

[30] Enterprise and Investment Zones: 'What works' for rural enterprise? NICRE Research Report No 22. nicre-research-report-no-22-august-2024-enterprise-and-investment-zones-what-works-for-rural-enterprise.pdf

manufacturing, which require skilled staff and high quality suppliers contributing to R&D. Securing such key 'anchor' businesses on rural sites to attract other businesses that are looking for space to expand or support staff wellbeing through location in a rural environment, can help generate place-based clustering[31].

The Enterprise Research Centre, a key partner of NICRE, has also identified that size, export status, industry sector, and ownership structure are all critical factors in business investment decisions. Large companies and exporters are more inclined to invest. Investment decisions are influenced by corporate leaders' ideas and aspirations. A positive prognosis for corporate growth and specific investments encourages decision makers to invest[32]. In addition, firms that will invest in capital equipment need to know what technology (capital and process) is available that could enhance their business.

Business investment also depends on the perception of opportunities. NICRE found approximately 80% of rural firms who believed they were well-positioned to capitalise on local development opportunities planned to increase or maintain their investment in environmental improvements in the coming year[33].

Investment decisions are shaped by firm characteristics, resource availability, leadership aspirations, and context-specific opportunities, with a positive ROI and reduced uncertainty being critical drivers.

Question 26: Do you agree with this characterisation of clusters? Are there any additional characteristics of dimensions of cluster definition and strength we should consider, such as the difference between services clusters and manufacturing clusters?

Cluster based approaches have traditionally been focussed on urban areas able to benefit from agglomeration economies and spillovers arising from a greater density of networks, businesses, knowledge institutions, skilled workforce, service providers and public institutions. OECD highlights that a low density of population, firms' dispersion, weak physical infrastructure, and long distances to metropolitan areas, are a challenge to the creation of clusters in rural areas and their ability to contribute to regional development. However, if built on locally identified specialisms and competitive advantages, anchoring development on the specific needs and assets of each territory, the development of clusters can also represent a significant opportunity and unlock innovation potential in rural areas[34].

---

[31] Enterprise and Investment Zones: 'What works' for rural enterprise? NICRE Research Report No 22. nicre-research-report-no-22-august-2024-enterprise-and-investment-zones-what-works-for-rural-enterprise.pdf

[32] Golubova, Eugenie. (2024) What do we know about factors that affect business investment decisions, ERC SOTA review No62, 13 August 2024 available at https://www.enterpriseresearch.ac.uk/publications/what-do-we-know-about-factors-that-affect-business-investment-decisions/

[33] NICRE (2024) The rural economy post-pandemic: opportunities and barriers for business growth, State of Rural Enterprise Report No 6. https://nicre.co.uk/media/1j1byg5r/nicre-state-of-rural-enterprise-report-no-6-january-2024-the-rural-economy-post-pandemic-opportunities-and-barriers-for-business-growth.pdf

[34] OECD, 2022 Enhancing rural innovation | OECD

There are many examples of cutting-edge science and technology clusters in rural settings across the country that are globally respected (see for example Harwell Science and Innovation Campus, south Oxfordshire; Sci Tech Daresbury in north Cheshire; Wales Food Tech Centre, Llangefni, Anglesey; Edinburgh Technopole, Bush Estate, Midlothian [Life Sciences]; high performance vehicle engineering business cluster around Silverstone and Brackley, Northamptonshire; and NETPark, Sedgefield [nano-tech, photonic, x-ray imagery and similar science firms]).

Future clusters and choice of sector priorities should be driven partially by locally-informed development needs and opportunities, with greater attention to delivering benefits to neighboring communities, which are often rural, and ways to extend the wider reach and benefits of clusters. One approach, for example, is to encourage a 'hub and spoke' model within high-potential clusters. The North East Technology Park in Sedgefield is a good example of this. As well as those firms located in the bricks and mortar of the science park itself, this hub networks and supports many more businesses in similar sectors across the wider local economy, either single site or in small dispersed local Enterprise Hubs. Such a model allows many more locations and high potential businesses to benefit from a cluster approach.

It is important to recognise complementarities up and down supply chains and understand that businesses from sectors using related / comparable technologies can work successfully in clusters. While clusters can support local and national growth, they can only do so if other sectors grow and develop along side them to provide supply chains and demand for cluster outputs and enable the dynamic adjustments which are not foreseeable in a market economy.

Alternative approaches are also be needed in areas with a more dispersed business base in order to develop effective knowledge infrastructures and encourage the proximity of and connection of firms and other actors[35], This includes, for example helping firms to develop networks to internationalise, or supporting local business hubs and micro-clusters that are reflective of local specialisms.

The Creative Industries are an example where micro-clustering plays a key role, and which demonstrate the value of supporting a micro-clustering approach in rural areas[36]. The creative industries are increasingly being recognised as potential drivers of economic growth in rural areas, and creative industries clusters are one key part of that potential. Cluster mapping demonstrates that rural micro-clusters are widely spread across the country, with about one-third of rural firms and organisations operating in small clusters. The research highlights the importance of place-based assets (such as cultural institutions and social capital) and avenues for place-based policy making to support micro-cluster formation and development on the basis of cultural regeneration alongside other forms of economic development.

Clusters can therefore take different geographical shapes and often span large geographical areas. If clusters need to have interaction between actors and some

[35] OECD 2022 Enhancing rural innovation | OECD
[36] Mapping and examining the determinants of England's rural creative microclusters. NICRE Research Report No 7. nicre-research-report-no-7-with-creative-pec-may-2022-mapping-and-examining-the-determinants-of-england-s-rural-creative-microclusters.pdf

governance of the cluster, then this may constrain their geography, even if firms may interact with organisations outside of the cluster area. Approaches may need to be tailored to account for larger cluster geographies. For example, the Highlands and Islands 'BLUE' economy covers a large geographical region but might well contain a number of sub-clusters.[37]. Similar arguments can be made for other widely dispersed clusters.

Evidence also points to the success of supporting the creation of local rural business hubs.[38]. The lessons from the Pilot Rural Growth Networks (RGN) in England can inform those developing local growth strategies. Such hubs provide a flexible approach for overcoming local constraints, lack of critical mass, and the dispersed nature of rural firms – and in enabling growth and grow-on premises for home-based firms that face particular limitations. They have generated a good return of investment, especially where they have been accompanied by proactive management and animation, and coupled with improved knowledge exchange, digital connectivity, business-to-business networking and business support.

Question 27: What public and private sector interventions are needed to make strategic industrial sites 'investment-ready'? How should we determine which sites across the UK are most critical for unlocking this investment?

The answer to this is to think from the businesses point of view. Four elements are apparent. First, the physical infrastructure including transport links and digital connectivity. Second, clear planning policies to enhance the certainty in investment. Third, ensure training hubs and partnerships with educational institutions to supply skilled labour tailored to the needs of target industries. Fourth, create the ability to collaborate between businesses, academia, and local authorities to foster innovation and investment confidence. Support for academic departments might be required. There is the potential to have 'pipelines' to academic support which may widen the opportunities.

In rural areas there are some clear examples of strategic investment sites such as Harwell Innovation Centre. There are examples of sites in rural areas tied to specific infrastructure such as in Autonomy and Robotics linked to the demand from Sellafield.

Question 28: How should the Industrial Strategy accelerate growth in city regions and clusters of growth sectors across the UK through Local Growth Plans and other policy mechanisms?

Embedding rural enterprise across local growth and investment plans, which are the cornerstone of a place-based approach, will be key to delivering the economic development goals of the many local and combined authorities that have a rural footprint. Lessons, for example, should be drawn from the experience of the North East Combined Authority and its development of an Environmental Stewardship, Coast and Rural Growth

[37] Nelles J. Kevin Walsh K., Papazoglou, M Nyanzu E., Abdul Rahman S.A., and Vorley T. (2023) Understanding Cluster growth Potential, part 2 available at https://innovation-research-caucus-uploads.s3.amazonaws.com/production/uploads/2023/08/Clusters-Part-2_Case-Studies-FINAL-22-June-2023-1-1.pdf

[38] Merrell, I., Phillipson, J. and Gorton, M. (2022) Enterprise hubs to support rural development, NICRE State of the Art Review No. 5. nicre-sota-no-5-august-2022-enterprise-hubs-to-support-rural-development.pdf

Investment Plan, and the establishment with Government of a 'North East Coastal and Rural Taskforce' focused on the natural environment and coastal and rural regeneration and growth.

For a growth-based policy to be effective it must be supported by a strong cross-sector coalition of diverse stakeholders, including those representing rural areas.[39] Effective local growth plans should be grounded in clear objectives aligned with national strategies, built on solid evidence, and developed through collaboration with local stakeholders. Empowering local authorities through devolution of powers and simplifying processes will facilitate more responsive and impactful economic development initiatives. Continuous monitoring, evaluation and development of an evidence base at sufficient granular level will ensure these plans remain relevant and effective in driving sustainable growth within communities and to ensure spatial tailoring and inclusivity of investment.

Regional and local economic development strategies must be tailored and sensitive to the particular challenges and opportunities of rural areas.[40]. To date, sub-national economic development has been highly urban-centred. The city-region approach has rested on trickle down assumptions, and not addressed Britain's geographical imbalances or fully built on the potential contributions of all places.[41], including of rural areas, to towns, cities, regional and national economies. Rural contributions can be sustained and enhanced by a model that supports 'trickle up' contributions from rural areas, strengthened by government support for rural capacity to 'Reach in' to economic development resources to tackle rural weaknesses or release rural potential.[42]. This would benefit from: (i) Modified targeting and design of new policies and investment programmes, to eliminate investment bias to cities and larger settlements; (ii) Choice of inclusive metrics and indicators of required benefits, economic or operational outcomes; (iii) Provision of dedicated investment funds for rural areas to strengthen interdependencies between places; and (iv) Building capacity of rural businesses and peripheral communities to develop, apply for and manage investments.

Question 35: How would you monitor and evaluate the Industrial Strategy, including metrics?

Designing a monitoring and evaluation framework so as to ensure a spatially inclusive approach to the Industrial Strategy will be essential to unlocking the growth potential of rural economies. An inclusive design approach is one which:

[39] https://www.brookings.edu/articles/seizing-the-moment-for-place-based-economic-policy/
[40] Phillipson, J., Turner, R., Tiwasing, P., Gorton, M., Maioli, S. and R. Newbery (2018) Rural economies and the UK Industrial Strategy. Rural Economy and Land Use Policy and Practice Note No. 6. Rural Enterprise UK. ppn-no-6-july-2018-rural-economies-and-industrial-strategy-on-line-version.pdf
[41] Ward, N. (2021) Levelling Up and Rural Areas – A Review of Lessons from Rural and Regional Development. NICRE State of the Art Review No 1. nicre-sota-no-1-march-2021-levelling-up-and-rural-areas-â__-a-review-of-lessons-from-rural-and-regional-development-neil-ward.pdf
[42] NICRE (2021) The strategic case for equitable recognition of rural economies in Levelling Up policies. NICRE Briefing Paper No 2. nicre-briefing-paper-no-2-november-2021-the-strategic-case-for-equitable-recognition-of-rural-economies-in-levelling-up-policies.pdf

- takes into account the higher unit costs of delivery in rural before prioritisation of funds (i.e sparsity normalised) to ensure rural communities have an equal chance of securing funds for projects on a like-for-like basis with towns and cities and to account for an often higher relative impact of investment in rural areas;
- avoids eligibility justifications which exclude rural (explicitly or implicitly) based on scale of intervention (e.g. too high minimum settlement size) or too high minimum investment thresholds or scale of expected outcomes;
- acknowledges lower capacity of rural bodies to apply for funds: building capacity of rural businesses and community organisations to develop, apply for and manage investments and allowing sufficient time scale for application or expenditure;
- includes appropriate metrics and indicators of benefits and outcomes such as those which:
    - facilitate targeting within local or combined authority areas to reflect diversity of business performance, productivity and entrepreneurship within areas;
    - are based on improvements in data and which is accessible at more granular levels for more locally targeted and sensitive measures and evaluation;
    - better reflect rural circumstances, such as: % households in fuel poverty; workplace based incomes; house price to local earnings ratio; rates of seasonal employment; frequency of public transport to key services; distance to FE provider with range of courses; % premises superfast broadband; cost of living etc.)
    - capture social and environmental outcomes (economic growth +).

This consultation response was prepared by Jeremy Phillipson (NICRE Director) and Ulrike Hotopp (NICRE Policy Adviser), with contributions from Kevin Mole, Thao Nguyen, Stephen Roper, Sarah Best, Matthew Gorton, Tom MacMillan and Damian Maye.

Founding research partners:

Newcastle University | Centre for Rural Economy

Newcastle University | Business School

CCRI

ERC Enterprise Research Centre

Funded in partnership with:

UKRI Research England

Newcastle University

University of Gloucestershire

Royal Agricultural University

Warwick The University of Warwick

Founding business partner:

Strutt & Parker BNP Paribas Group