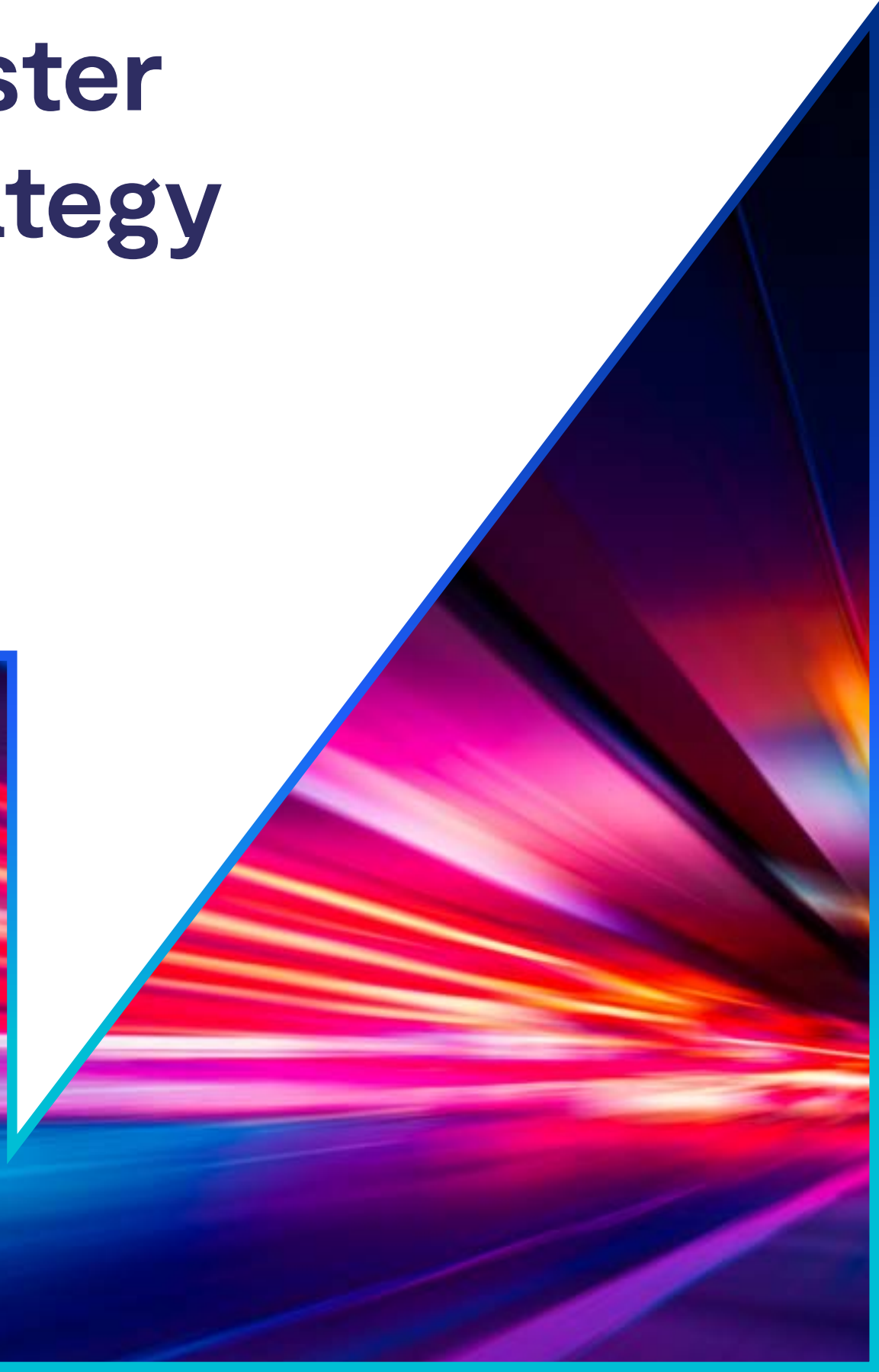




Science and
Technology
Facilities Council

Cluster Strategy





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Foreword

We have a great opportunity to exploit STFC's and its partners' experience and heritage in creating thriving innovation clusters. By working with key stakeholders we can accelerate the growth and effectiveness of emergent clusters throughout the UK, boosting business innovation, expanding the workforce and generating a more resilient and competitive economy.

Dr Barbara Ghinelli, Director, Innovation Clusters and Harwell Campus, UKRI-STFC

Summary

The clusters anchored by the STFC campuses at Harwell and Sci-Tech Daresbury have proved to be extremely effective in facilitating innovation, accelerating translation and commercialisation, and attracting public and private investment in R&D. Each cluster helps to develop a competitive advantage in key sectors and technologies (Space, Health, Energy, Digital and Quantum) and provides a framework to boost innovation activity in business, securing jobs and economic growth.

Background

Starting over a decade ago with the Space Cluster at Harwell, STFC has developed a cluster model that, at its core, is designed to facilitate rapid transfer of knowledge from the UK's world-class R&D base into innovative products and services, promoting and encouraging their rapid commercialisation. Thriving clusters have been established in Health, Energy and Space at Harwell, while a fourth cluster in Quantum is under development.

The original approach at Harwell has been evolved for Daresbury, to extend beyond the STFC Campus and help to shape activities across North West England (NWE), where we have now established clusters in Digital, Health and Space. Through strategic engagement and partnership building, we have helped to bring together and align key businesses, academic institutions, local and regional agencies behind a shared vision for these clusters. Effective communication, breaking down siloes, and improving connectivity between cluster organisations, and between clusters, is key to their long-term success.

The clusters anchored to the campuses at Harwell and Sci-Tech Daresbury have grown rapidly, with 100's of companies attracted by, and benefitting from, the productive and interactive ecosystem that has been created, fostering more than 20% job growth on average every year. In some clusters, in particular Space and Health, more than 40% of new businesses are inward investors. These clusters have supported over 200 new innovative collaborations and attracted over 300 commercial organisations to the campuses, so far.

These businesses have raised over £1.4 billion¹ in private investment and employ 1,000's of highly skilled people.

One of the key characteristics of the STFC cluster approach is the emphasis on cross- disciplinary interactions, with ideas and methodology generated in one discipline stimulating fresh thinking in another. As a result, about a third of organisations now work across more than one cluster. Another key aspect is that each cluster has a manager, whose role is to understand the needs and aspirations of the companies under their stewardship. As a result, the cluster managers are well positioned to identify complementary capabilities between organisations and facilitate contacts that can help meet the needs of individual cluster members.

The development of successful geographically distributed clusters in the NWE is encouraging and illustrates ways that STFC leadership could help nurture cluster growth in other areas of the UK. STFC's convening power could further connect communities and clusters across the UK regions to maximise their impact and improve the international competitiveness of the nation.



3 mature clusters supported in Space, Health, Energy and an emerging cluster in Quantum



3 regional clusters supported in Health, Digital and Space

¹ As at 2022

UK Context

Thriving clusters drive economic growth and prosperity². The recent mapping of high-potential business clusters across the UK by the Department for Science, Innovation and Technology (DSIT), has identified established and emergent clusters in all regions of UK that are anchored by a critical mass of businesses, research institutions, innovation assets, networks and other organisations in specific research and innovation and technology areas. To fully exploit the potential of these clusters it is important to learn lessons, to understand what works

and what doesn't in a particular context, and thus to maximise each cluster's impact. Clusters are, or have the potential to be, at the forefront of efforts to tackle the major challenges of today and tomorrow. The UK Science and Technology Framework recognises that clusters are a good way to accelerate translation, commercialisation and knowledge exchange and boost innovation activity in business³. This is underpinned by an ambition to build capacity and accelerate growth of world-class clusters and new cluster communities in all UK regions.



In addition to STFC, several partners and stakeholders from across the UK innovation ecosystem are helping to strengthen the conditions and communities that underpin cluster growth.

Innovate UK has led UKRI support in delivery of the Innovation Accelerator programme, working in collaboration with three pilot areas of Greater Manchester, the West Midlands City Region, and Glasgow City Region, and UK government⁵. These public-private-academic partnerships will invest £100m to grow R&D strengths, boost innovation and development and drive-up prosperity and opportunity in the three regions. Innovate UK Launchpad investments are also building capacity in clusters of innovative businesses that can support impact in more UK regions.

The Ministry of Defence (MoD) is supporting industry, academia, and local government in piloting a network of Regional Defence and Security Clusters (RDSCs)⁶ that build on, and develop, regional strengths and capabilities. In doing so RDSCs will help identify routes to exploitation and commercialisation, while creating collaborative pathways for SMEs into the defence supply chain.

To help realise the potential of Space and proactively deliver Government's ambitions to drive growth and prosperity across many areas of the wider UK economy, the UK Space Agency is supporting the development of local Space ecosystems across the UK⁷. It is providing targeted support to implement local space sector strategies and cluster development, alongside funding for major infrastructure projects. This intervention will help to broker partnerships and connections between local Space ecosystems and national space-science communities, infrastructure and capabilities.

Private sector investment in lab, office space, scientific services, accelerators and business support programmes for science and technology companies has increased significantly in the UK over the last decade. A subset of investors such as The Pioneer Group, Brunwood SciTech and in particular Brookfield's Advanced Research Clusters (a partner at Harwell), have recently started to move beyond providing real estate solutions to building communities of entrepreneurs, investors and businesses that are connected to high-potential clusters of businesses across the country and developing links with the wider science and innovation system.

¹ Beauhurst data, as of 2022

² assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009577/uk-innovation-strategy.pdf

³ The UK Science and Technology Framework: taking a systems approach to UK science and technology (publishing.service.gov.uk)

⁴ Independent Review of the UK's Research, Development and Innovation Organisational Landscape: final report and recommendations (publishing.service.gov.uk)

⁵ ukri.org/news/100-m-rd-levelling-up-funding-awarded-to-accelerate-innovation

⁶ assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/971983/Defence_and_Security_Industrial_Strategy_-_FINAL.pdf

⁷ gov.uk/government/news/boost-for-space-clusters-across-the-uk

Moving Forward

The previous section illustrates that throughout the country there is considerable progress, and recognition of the need, to exploit clusters as a means of enhancing coordination and driving economic growth. STFC is well placed to help drive these opportunities, building on its leadership and leveraging methodologies that have established thriving clusters at Harwell and the NWE region encompassing Sci-Tech Daresbury.

Through Clusters, STFC leadership brings together the partners and resources necessary to drive business-led growth and job creation at local, regional and national levels. We provide a framework for innovators to connect and collaborate with people, ideas and organisations across the UK, enabling the development of advanced technologies, new products, processes and services and improving the impact of R&D and UK competitive advantage.

Our stewardship of clusters supports innovative start-up, scale-up and mature businesses to grow on the campuses at Harwell and Sci-Tech Daresbury and promotes growth and innovation across local and regional innovation ecosystems. We encourage and facilitate businesses, researchers, facilities and other organisations to build partnerships and secure scale-up finance and inward investment - enhancing the resilience and competitiveness of key sectors of the economy, including digital, health and life sciences, energy, space and security and quantum.

By leveraging a diverse pool of people, skills and investments, our clusters enable the delivery of significant economic and social benefits across the UK. The cluster policy and practices STFC has developed helps to unlock this potential and further strengthens STFC's position as a thought leader across UKRI and government. Our evidence base supports policy debate at the local, national and international level, and informs our decision making.

Our Priorities

Our vision for clusters will support the government's ambition to secure the UK's position as a science superpower and innovation nation. To fully realise this potential, we will:

- Build on the excellence of the Cluster Programme at Harwell Campus and across the North-West England; leveraging outstanding multidisciplinary science infrastructure, vibrant business communities and key regional innovation assets to drive growth.
- Connect communities across the UK, working with our stakeholders, to strengthen collaboration and partnership between clusters and improve the international competitiveness and global impact of R&D.
- Extend and leverage our capabilities, technologies and experience to accelerate the emergence of sustainable clusters elsewhere in the UK, working closely with partners across government and UKRI.
- Leverage private sector investment in R&D, infrastructure and 'place making' to promote cluster growth and innovation in key locations throughout the UK.
- Evidence the economic and social impact of our cluster activities to inform policy debate at the national and international level on the role of clusters in driving sustainable growth.

Implementing Our Priorities

The current STFC-led Cluster Programme is delivered through a cross-cutting series of activities, partnerships and collaborations. To fully realise the potential of this programme and deliver the ambitions of this strategy we outline a coherent approach that will use the convening power of clusters to facilitate access to UKRI people, ideas and strategic assets.

Our approach will help build the viability of emergent clusters while strengthening established clusters. We will enable access to the capabilities and critical mass of the STFC-led clusters, improve connectivity to the STFC national laboratories, and strengthen links across wider UKRI research base.

Different regions and thematic areas have specific requirements and challenges; therefore, our approach will be informed by ongoing dialogue and engagement with appropriate teams, communities and stakeholders. This will ensure we identify and implement best practice for regions and locations and provide valuable feedback to all partners, including STFC.

1.1

To build on the excellence of the Cluster Programme at Harwell Campus and across the North-West England, leveraging outstanding multidisciplinary science infrastructure, a vibrant business community and key regional innovation assets. We will:

- Work with partners across UKRI, such as Innovate UK, to augment the Cross-Cluster Proof of Concept Programme and other business support activities, to enhance engagement and funding opportunities for business and incentivise multi-disciplinary working between the diverse communities in clusters.
- Use our campuses and Clusters as national attractors of inward investment across the UK, strengthening engagement with the Department for Business and Trade and Office for Life Sciences; for example, maximising the benefits of health and life science strengths and establishing new initiatives such as the Space Gateway.
- Work with our Campus JV partners and local leadership groups to encourage and support private sector investment into incubation and scale-up capabilities to ensure business can get access to the right facilities and skills at the right time to scale-up and grow within the clusters.
- Play an influential role in supercluster initiatives, such as the Oxford to Cambridge Partnership and pan-Regional opportunities to across the North of England, to help support and anchor knowledge-based jobs and growth in the regions and link those regions to other clusters in the UK.



1.2

To extend and leverage our capabilities, technologies and experience to accelerate the emergence of sustainable clusters elsewhere in the UK, working closely with partners across government and UKRI. We will:

- Identify synergies between the STFC Cluster Programme and other strategic programmes (e.g. Investment Zones⁸, Freeports⁹, Innovate UK Launchpads, Innovation Accelerators and UKSA Innovation Programmes) that will enable development of new innovations in AI, quantum, Net Zero, health and life sciences, defence and security, and space and, strengthen local innovation capability and support longer-term sustainability of the regions.
- Extend our network and support to help businesses in emerging clusters gain access to expertise, business support, demonstration platforms, equipment, facilities and digital infrastructure on our campuses at Harwell and Sci-Tech Daresbury as well as other UKRI assets.
- Engage with national agencies and bodies to support development and co-delivery of complimentary cluster programmes - such as the UK Space Agency to help develop world-class space clusters across the UK, and with the Ministry of Defence and the Defence and Security Accelerator to connect and grow Regional Defence and Security Clusters - delivering components of the National Space Strategy and ambitions contained within the Integrated Review.

1.3

To leverage private sector investment in research and development, infrastructure and 'place making' to promote cluster growth and innovation in key locations throughout the UK. We will:

- Work in partnership with local stakeholders to evidence and contextualise the innovation characteristics, strengths and future growth opportunities of key locations across the UK, to identify where, and what, STFC support will make the greatest impact.
- Draw on the strength and expertise of our existing collaborations and cluster governance structures to develop guidelines and best practice principles for the clusters STFC will help to create elsewhere in the UK.
- Leverage existing public-private collaborations, such as the Campus Joint Venture Partnerships with Brookfield Asset Management and Langtree, to develop a business model through which STFC can secure resources and private sector funds to support the early-stages of cluster development in other locations in the UK.

1.4

Evidence the economic and social impact of our cluster activities to inform policy debate at the national and international level on the role of clusters in driving growth. We will:

- Develop a broad evidence base and deep insights on what works (and what doesn't work) to inform future decision making. Share good practice on the STFC 'cluster model' with UKRI, government and other partners.
- Develop thought leadership articles in partnership with emerging and established clusters to inform debate on the future role of clusters, and encourage international collaboration and engagement through clusters e.g. Pioneer Campus 2040 research.
- Convene diverse groups of businesses, local leadership groups and other organisations from across Clusters to strengthen our understanding of key science and innovation concerns and priorities (e.g. talent and skills, growth challenges, investment, capabilities and supply chain issues) to support and inform government policy discussion.



⁸ [gov.uk/government/publications/investment-zones](https://www.gov.uk/government/publications/investment-zones)

⁹ [great.gov.uk/international/content/investment/how-we-can-help/freeports-in-the-uk](https://www.great.gov.uk/international/content/investment/how-we-can-help/freeports-in-the-uk)



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