

Buckinghamshire Digital Innovation Plan

June 2022

Buckinghamshire
LOCAL ENTERPRISE
PARTNERSHIP
THE ENTREPRENEURIAL HEART OF BRITAIN

Table of Contents

Foreword	3
The aim of the Digital Innovation Plan	4
Themes of the digital innovation plan	6
Digital Skills	7
Case Study: Implementation of cyber security at Ngage.....	9
Improve innovation cluster development and collaboration	10
Case Study: Westcott Future Network Development Centre.....	12
Leverage existing infrastructure programmes	13
Case study: East-West Rail	15
Promote Buckinghamshire as an area for testbeds and innovation	16
Case study: Buckinghamshire Health Research and Innovation Centre	17
Secure and enable funding	18
Data and Intelligence	19
Action plan	20

Foreword

Along with the rest of the world, the UK has faced a period of unprecedented change since 2020. The Local Industrial Strategy¹, published in 2019, outlined the aims and aspirations for the local economy, businesses, and workforce. Central to the Local Industrial Strategy was an understanding of the importance of science, technology, and innovation to mobilising Buckinghamshire's economic assets to drive growth. The Covid-19 pandemic has cemented these themes into the fabric of our everyday lives. Our increasing reliance on fast and reliable digital connectivity was also accelerated by national lockdowns as we learnt, worked, socialised, and managed businesses via digital channels. This technological revolution emphasised the value of innovation, collaboration and leveraging existing infrastructure frameworks - but it also emphasised the impact of a digital skills gap on Buckinghamshire communities and businesses.

We have then, two distinct aspects of digital planning required to capitalise on the opportunities for Buckinghamshire: infrastructure and innovation. In terms of the infrastructure portion, Buckinghamshire Council will be publishing the Buckinghamshire Digital Infrastructure and Connectivity Plan in 2022. This will focus on the enablement and delivery of improved digital infrastructure through national and local investment, such as Project Gigabit and the Gigabit Voucher Scheme.

As for the innovation strand, Buckinghamshire Local Enterprise Partnership present this Digital Innovation Plan, which focuses on the opportunities and need to capitalise on infrastructure investment to maximise the potential returns for our county. Digital innovation has a huge role to play in the context of meeting the objectives outlined in the Buckinghamshire Local Industrial Strategy and Economic Recovery Plan², specifically supporting business growth and innovation. Innovation is a key driver for business growth, and investment in, and development of innovation will be vital to strengthening and growing our local economy, as well as encouraging businesses to invest in the local area. In support of innovation, a key relationship is with existing Buckinghamshire higher education organisations – and we must also look to build new bridges with research communities outside Buckinghamshire which can benefit our development – to ensure that Buckinghamshire businesses are at the cutting edge of innovative research and development, and able to secure the funding needed to support these developments. Establishing a strong innovation ecosystem will also then have a significant real-world benefit in terms of offering opportunities to develop digital skills, build the local economy and ensure that Buckinghamshire fulfils its innovation potential.

Signed



Andrew M Smith

Buckinghamshire LEP Chair

¹ [Buckinghamshire Local Industrial Strategy \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

² [Buckinghamshire-Economic-Recovery-Plan-November-2020.pdf \(buckslep.co.uk\)](https://buckslep.co.uk)

The aim of the Digital Innovation Plan

The strategic landscape for digital innovation has been changing rapidly in recent years, with the production of numerous government planning documents which foreground the importance of innovation in the UK plan to build back better. The common themes across all these documents are the importance of utilising world-class digital infrastructure such as the deployment of 5G; closing the digital skills gap; establishing new strategies (such as the National Artificial Intelligence Strategy) to foster economic growth; and utilising digital technology to work towards net zero by 2050. Many of these goals were also highlighted within the Buckinghamshire Local Industrial Strategy³ (July 2019), and as such work is already ongoing in several of these areas. The task now is to build on that work to realise the potential of each project, and to accelerate investment in the local area.

In pursuit of this, the digital innovation plan focuses on the following core themes:

- Digital skills
- Improving innovation cluster development and collaboration
- Leveraging existing infrastructure programmes
- Promoting Buckinghamshire as an area for testbeds and innovation
- Securing and enabling funding for digital innovation
- Maximising the use of relevant data and Intelligence

These areas will be explored further throughout the plan, however central to these areas of focus is a need to enhance and develop the innovation ecosystem within Buckinghamshire. The county is already renowned for expertise in high-performance engineering and space research, and we need to expand on this by exploring further opportunities for business growth and research and development.

In relation to digital occupations, a recent DCMS report on regional digital ecosystems highlights that in the South East “the highest levels of demand for digital occupations come from Berkshire, Buckinghamshire and Oxfordshire”⁴. The reason for this demand is particularly evident when analysing the clusters of digital assets within Berkshire, Buckinghamshire and Oxfordshire in comparison with the rest of the South East. Figure 1 maps the South East assets, specifically universities offering computer science courses, accelerators and incubators, university spinouts and additional research assets. For the purposes of this innovation plan, the map is a useful indicator of existing assets within the county. We can, for example, expect to develop ever-deeper relationships with Buckinghamshire higher education institutions, which have strengths in computing, artificial intelligence and medical technology advancements and forging relationships with innovative SMEs within Buckinghamshire. There are also opportunities for supporting the development of density in high growth digital sector businesses within the county – frequently these are clustered in large urban areas as the heat map below (Figure 2) demonstrates. To strengthen this area, Buckinghamshire Local Enterprise Partnership (LEP) will develop ambitious plans to provide new opportunities for digital innovation by co-ordinating partnership working, driving innovation, and supporting the pursuit of targeted funding. The role of the LEP and our Buckinghamshire Business First Growth Hub will be as a convener and collaborator, co-ordinating the creation of a Digital Innovation Advisory Forum to establish roundtable events which invite diverse partners who can share knowledge and develop opportunities for engagement. In turn, this collaboration will provide springboards to new funding avenues to

³ [Buckinghamshire Local Industrial Strategy \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/812241/buckinghamshire-local-industrial-strategy-2019.pdf)

⁴ [Assessing the UK's Regional Digital Ecosystems](#), p.95.

target investment within the county as well as further informing policy development within the LEP.

The action plan at the end of this strategic planning document highlights work which can be undertaken over the next three years in order to deliver against the core themes.

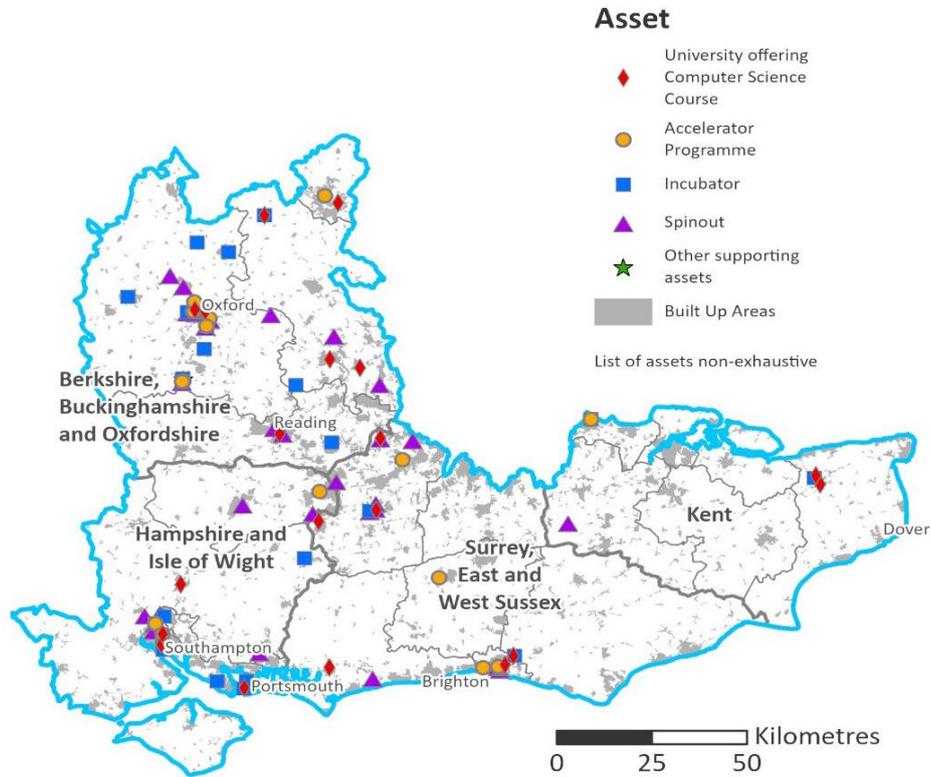


Figure 1. Digital Sector Assets (2021). *Assessing the UK's Regional Digital Ecosystems* p.99.

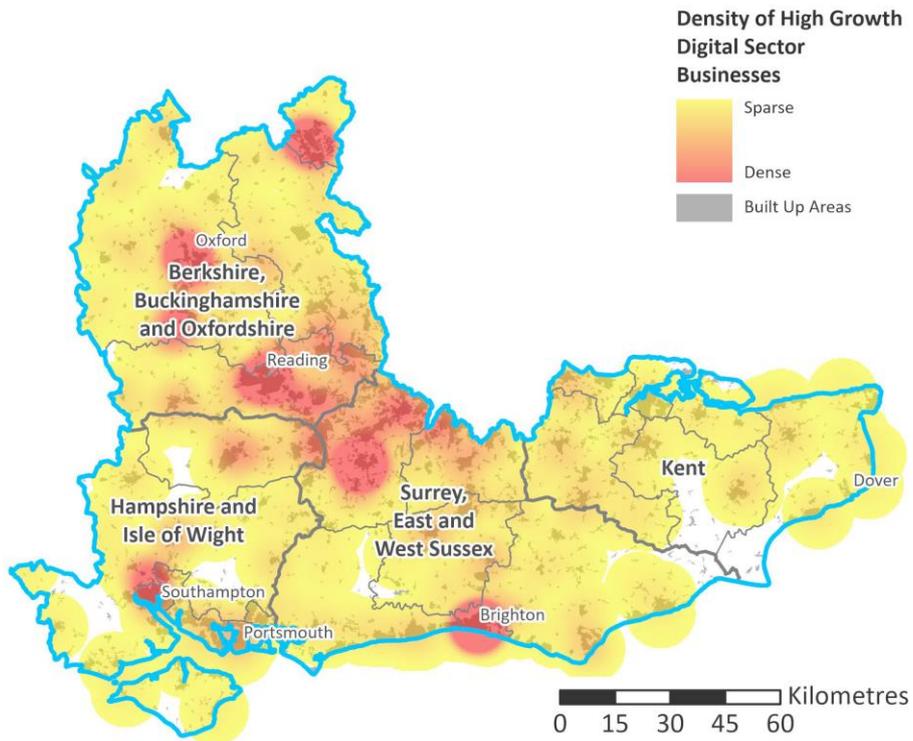
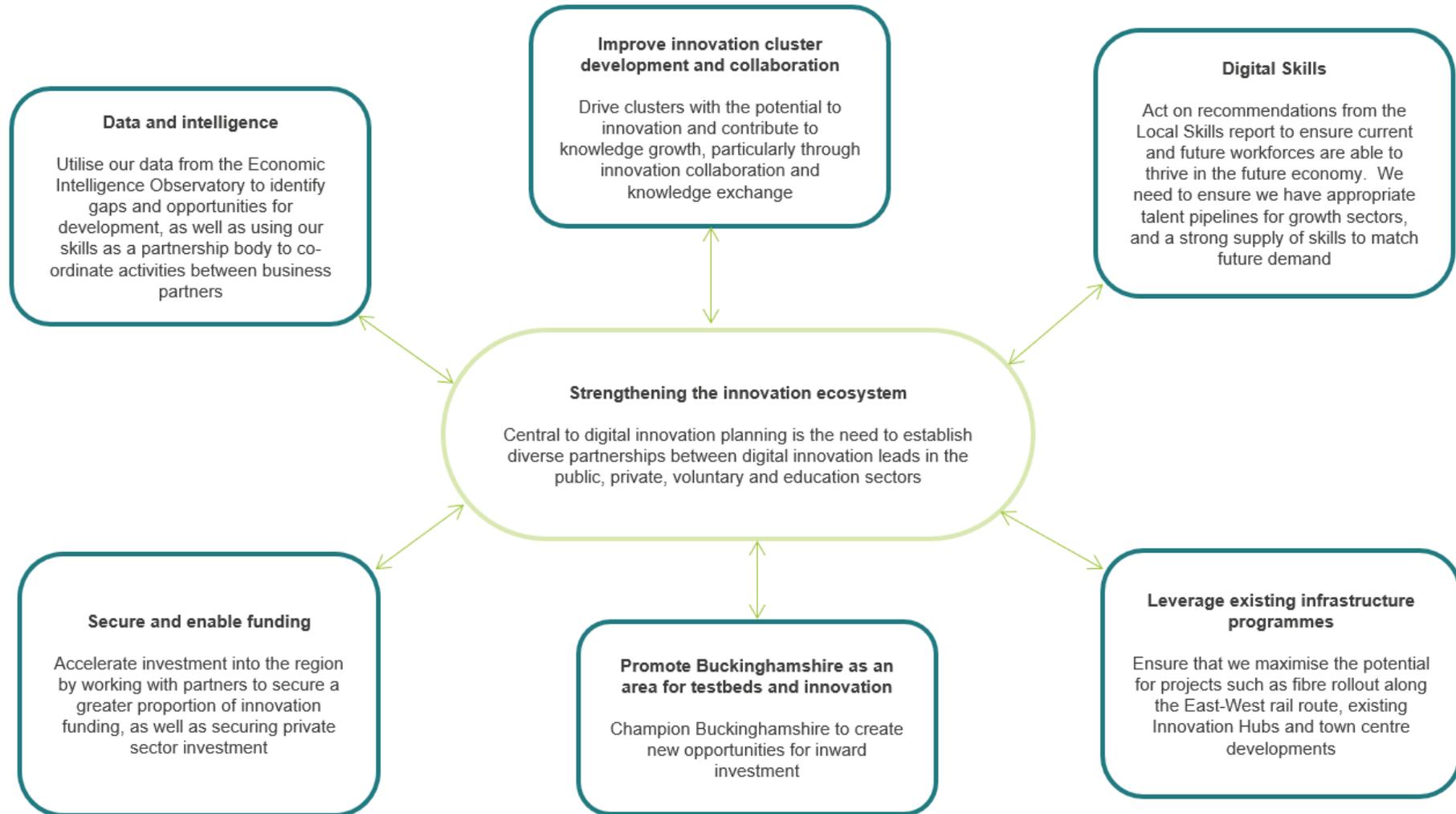


Figure 2. Density of digital sector high growth businesses (2020).

Themes of the digital innovation plan



Digital Skills

Recruitment difficulties are now a critical issue across a wide range of sectors in Buckinghamshire⁵. This includes education, social care, construction, film and TV, and hospitality – employers are struggling to recruit and retain staff, with an impact on economic growth.

A key skills issue within Buckinghamshire (and indeed, globally) is the need to raise digital skills at all levels. According to the Employer Skills Survey (DfE, 2019) pre-Covid-19:

- A third of Buckinghamshire employers with employees deemed 'not fully proficient' stated that these employees lack the required IT skills.
- A third of Buckinghamshire employers struggling to recruit people with the required skills said that applicants lacked the required digital skills.
- Nearly three quarters of Buckinghamshire employers anticipated the need for new skills within their business over the next 12 months. Of these, 45% anticipated the need for new digital skills.

Covid-19 has accelerated the need for individuals to raise their digital skills (be that within current roles or to access new employment opportunities) and for employers (particularly SMEs) to adopt new technology. However, gaining digital skills appears not to have accelerated significantly over recent years. Research undertaken by WorldSkillsUK in 2021 found that take-up of digital subjects at schools, colleges and for apprenticeships has remained static or, in some cases, has declined in recent years. Whilst there has been a slow but steady increase in participation in digital training in higher education, they conclude: "While demand for digital skills is set to increase rapidly, the pipeline of digital skills through the education and skills system is not providing the skills at the scale we need"⁶.

To date, Buckinghamshire LEP has targeted its skills-related investments towards sectors seeking to grow in the next ten years. These strategic growth sectors are space, creative, high-performance technology and health (also known as MedTech), while investment has been targeted more broadly at raising digital skills across the economy as a whole. In pursuit of raising digital skills across Buckinghamshire, and in addition to LEP funding, Buckinghamshire Business First provides signposting and enables businesses to easily access the appropriate digital training for their workforce, including making better use by Buckinghamshire businesses of the new Institute of Technology at Bletchley. It provides digital leadership training for business leaders as part of the peer-to-peer network programmes being delivered by the Buckinghamshire Business First Growth Hub. There is also scope to support the potential development of a Thames Valley Digital Forum delivering closer collaboration between local digital networks across the Greater Thames Valley area. Skills partners also continue to work as part of the Inno Industry programme to share best practice in digital innovation in business across Europe, whilst the LEP continues to co-ordinate and signpost skills providers to the growth hub.

⁵ See the Buckinghamshire Local Skills Report <https://www.buckslep.co.uk/our-strategies/buckinghamshire-local-skills-report/>.

⁶ [Disconnected-Report-final.pdf \(worldskillsuk.org\)](#) p. 8.

There is an opportunity to build on the strong public-business partnerships in Buckinghamshire to address gaps in digital skills for businesses, increase digital leadership in business, and support wider sharing of best practice across the SME base. Many SMEs and high street retailers have been particularly hard hit by the loss of physical trade during the pandemic and this has emphasised the pre-existing skills gap. Through a joined-up approach to digital skills development, the partnerships should encourage and incentivise businesses to see the opportunities available from new ways of working and through the blending of an online and physical high street presence. The increasing digitisation of the world of work and the local economy is already having a significant impact on the fabric of communities, including local retail and traditional high street retail. Opportunities need to be sought with local and national partners to develop a skills network amongst SMEs, exploiting offers of digital skills training and developing talent pipelines to both upskill existing workers but also offer the chance to place appropriately skilled employees within Buckinghamshire.

In addition to the skills needs accelerated as a result of the global pandemic and a strong move to delivering business and services online, it is also necessary for businesses to increase skills in those areas which underpin successful delivery of online services. A crucial area here is cyber security. In a time of increased remote working and growing cyber threats, SMEs are facing major cyber security challenges. These challenges may include a low budget for security, an increase in the prevalence of cyber-attacks, and also a lack of cyber skills and awareness which could have a range of impacts on business, including disruption to service, remedial costs, fines and reputational damage. Again, the Growth Hub will be key to tackling the digital skills challenge in relation to cyber security, having already promoted the Cyber Essentials accreditation as well as free tools to help organisations learn more about their resilience to cyber-attacks. In terms of larger businesses dealing with cyber security skills challenges related to the introduction of 5G within their businesses, for example within digital manufacturing, these concerns could be brought to the Digital Innovation Advisory Forum for best-practice discussions and progress planning.

Case Study: Implementation of cyber security at Ngage

Ngage is a not-for-profit organisation that creates business support programmes to strengthen local economies. Passionate about economic development, Ngage helps SME businesses to become greener, leaner, and faster growing through targeted state and private investment.

Ngage have embedded awareness of cyber security and data protection within their teams by focusing on the importance of all staff taking ownership and responsibility for being cyber security conscious. Research has indicated that sophisticated cyber-attacks, such as phishing scams (designed to induce employees to reveal personal or corporate information) are exploiting the possibility of human error, which is a major threat to cyber security within organisations. Phishing scams are, of course, only part of the problem in terms of human-based data breaches as many companies have now adopted a 'Bring Your Own Device' (BYOD) model, particularly given the impact of the Covid-19 pandemic and the sudden shift to remote and homeworking. Options such as Microsoft's Intune can help organisations to manage access to corporate apps, data, and resources by enrolling specific devices, although this shift to BYOD has blurred the boundaries between the personal and professional as the same device may be in use for both aspects.

To place cyber-security at the forefront of employees' minds, Ngage have a programme of online mandatory training for new starters, as well as an annual refresher for existing employees which covers the inherent risks of a cyber or data breach as well as methods for identifying potential attacks. This awareness is also regularly bolstered by best-practice updates within staff newsletters to guide employees in how to manage cyber risks. Risk management was a key motivator in implementing a programme of cyber security measures, as well as an awareness of the prevalence of cyber-attacks particularly targeting businesses/employees and exposing the organisation to financial loss. Furthermore, the funder requirements for Ngage make it necessary for the organisation to demonstrate robust cyber security measures.

In order to address these motivations and concerns, Ngage recently renewed their Cyber Essentials certification. Cyber Essentials is a government backed scheme that helps organisations of all sizes to protect themselves against a range of common cyber-attacks. Whilst there are two levels of certification (Essentials and Essentials Plus), the Essentials programme is designed to address the basics of cyber security and prevent the most common attacks. Utilising the self-assessment tool within Cyber Essentials, Ngage took the opportunity to revisit and refresh existing cyber policies – and the course itself has also been refreshed to reflect the changes to working practices brought about by increased remote working and movement of services to the cloud. As well as being good practice, the completion of Cyber Essentials certification provides reassurance to funders and partners over systems and data security.

In addition to staff training, there are systems in place to support users – for example, use of software to 'hold' potentially suspicious messages and prompt the user to consider their validity, as well as software to parse clickable links to a targeted threat protection system to scan for potentially malicious content. A third-party provider also manages the centralised distribution of software security patches and automatic data back-ups to ensure the greatest level of security for the information held on company systems, as well as the greatest level of resilience for the company itself.

Improve innovation cluster development and collaboration

Buckinghamshire has four internationally significant economic assets: Westcott Space Cluster, Silverstone Park and Technology Cluster; Pinewood Studios and creative businesses and Stoke Mandeville and MedTech businesses. Enterprise Zones allow for the clustering of some of these industries such as space exploration and high-performance engineering, which have been described as key to the ultimate growth of the UK economy. These clusters also allow experienced and established businesses to assist in the growth of fledging entrepreneurs and SMEs through knowledge share and commercial investment. The role of business parks and business clusters in a post-Covid world is being redefined. We need to capitalise on our specialisms and economic hubs to grow our economy in MedTech, space, high-performance engineering, creative industries, energy and carbon reduction and food processing. Digital connectivity is also fundamental to ensuring businesses continue to see Buckinghamshire as an attractive place to work so the effective rollout of gigabit broadband to business parks via the Gigabit Voucher scheme (as highlighted in the Digital Infrastructure and Connectivity Plan) is crucial to cluster development.

Currently, we support business growth through the collaborative efforts of Buckinghamshire Council, Buckinghamshire Local Enterprise Partnership, and the local Growth Hub, Buckinghamshire Business First. Through the Inno Industry Programme we support digital leadership programmes for business leaders, leading to the development and widespread use of digital plans for the effective use of technology in business, and there may be scope to incentivise the digital planning process through the provision of Gigabit vouchers to businesses. The Inno Industry project has indicated that wages in developed clusters are close to 3% higher than industries not located in such regional hotspots⁷ so there is clearly an economic imperative to supporting cluster development within Buckinghamshire.

In order to support this cluster development further, we need to explore and identify gaps within the innovation ecosystem and either formalise structures to enable collaborative working or establish new sector groups where none exist. This will particularly draw on the relationships with higher education and SMEs to develop links and synergies between the innovation clusters and local business. This might be achieved through the establishment of cluster showcase events to demonstrate the facilities available at each site. Business and higher education partners would then share expertise and explore areas of collaboration and cross working which have the potential to address sector problems and drive research and development outputs. Advocacy around the facilities, services and support potential in each cluster is important to leverage the opportunities presented by cluster investment – Westcott is an example of where this investment can attract other business to the local area, and this should be used as a model for further development.

In addition to fully exploiting our existing cluster strengths, new cluster opportunities also need to be explored. For example, there is significant potential in developing a life-science innovation cluster in the south of Buckinghamshire capitalising on the access to the global gateway at Heathrow and the skills and academic research capabilities within easy access of Buckinghamshire. The need for continued infection control has advanced the need to separate clinical, community and rehabilitation healthcare provision. In Buckinghamshire we have a unique opportunity as part of the integrated healthcare pathway to review and implement our public healthcare offer to make community facilities more accessible, to advance our position as a world leading centre for rehabilitation research and ensure better safety within our clinical healthcare settings. There are also opportunities to support investigations into the potential of areas such as a development zone to specialise in alternative energy models, for example green hydrogen production to support the aviation and automotive sectors, particularly in view

⁷ <https://www.interregeurope.eu/innoindustry/>

of the potential contribution to achieving UK net zero ambitions. The Buckinghamshire Local Energy Strategy, 2018-2030⁸ highlights particular challenges within Buckinghamshire such as constraints on the local energy grid in many locations, as well as a high proportion of properties in Buckinghamshire that are not connected to the gas network, with oil and electric providing heating.

These challenges give rise to many opportunities in this area. The Westcott Solar Park for example, generates around one third of the current electricity requirement, with plans in place to install a new unsubsidised 15MW solar park which will make Westcott the UK's first carbon-negative business park. Similarly, the Woodlands development provides an opportunity to install a heat network which could also be connected to the neighbouring Arla dairy site, making use of varied heat demands and potential to utilise waste heat. The role of the LEP will be in advocating for the introduction of these types of innovation to be built into future developments and utilising these examples as achievement indicators. Furthermore, engagement with significant national infrastructure projects, such as East-West Rail and HS2, offer the opportunity to secure long term legacy benefits to the area particularly through LEP advocacy for improvements to the electricity grid as well as the introduction of emerging low-carbon traction technologies, such as battery and hydrogen power. Additionally, the work of the LEP will be focused on identifying areas for project development (with partners such as BEIS and the Greater South East Energy Hub); working with the Growth Hub to identify suitable funding opportunities for businesses with expertise in this area, and adopting a delivery, enablement and advocacy role to promote and support actions by partners and other organisations to support innovative clean energy delivery.

⁸ <https://www.energyhub.org.uk/wp-content/uploads/2020/02/Buckinghamshire-Local-Energy-Strategy-2018-2030.pdf>

Case Study: Westcott Future Network Development Centre

The Westcott Future Network Development Centre (FNDC) is a joint funded venture between Buckinghamshire Local Enterprise Partnership and the Satellite Applications Catapult, focused on resilient communications. Located in a rural area with poor terrestrial coverage, the Westcott site allows for academic and industry partners (both large and small) to test new infrastructure without the risk of causing interference to other systems. The location also offers a variety of geographical features that can be used for testing operational technology, such as autonomous systems (drones) running on 5G networks. This on-site testing has the potential to transfer to real-world projects and testbeds within the county, trialling innovative digital solutions to a range of sector issues, including health, automotive and Internet of Things (IoT).

In terms of how this cluster is being utilised for the benefit of Buckinghamshire, the investment in the FNDC is advancing innovation through welcoming companies such as OneWeb, the global communications network powered from space to the Westcott Venture Park. OneWeb's mission is to deliver broadband connectivity and bridge the Digital Divide, which has the potential to have real world applications in addressing the limited services available in rural areas especially in terms of improving capacity, mobile resilience and nationwide coverage. Furthering the practical implications of satellite technology at a national level, OneWeb have also signed a memorandum of understanding with BT to explore the provision of improved digital communication services to some of the hardest to reach places. As a LEP we need to encourage more Buckinghamshire businesses and other organisations to take advantage of the globally unique testing infrastructure available on their doorstep.

Also at a national level, the Satellite Applications Catapult has secured funds to deliver 5G and satellite data expertise as part of the 5G Rural Dorset project. This project will implement trials aiming to demonstrate the improvements that a 5G network can bring to rural locations, with a focus on reducing costs and improving coverage. Enhanced connectivity will therefore offer opportunities to test Internet of Things (IoT) devices for coastal safety as well as applications in agriculture and aquaculture. Westcott is currently working collaboratively with other national 5G centres, industry and academia to support the development of products, services and applications. This will assist with increasing productivity and being first to market with new applications and services that develop networks capability and will be a key factor in exploiting their economic benefits.

Leverage existing infrastructure programmes

There are already many infrastructure programmes underway in Buckinghamshire bringing investment and service improvement to local communities: Project Gigabit (as outlined in the Council Digital Infrastructure and Connectivity plan) is bringing gigabit capable broadband to rural businesses and communities throughout the county; the development of the East-West rail link is allowing fibre digital spines to be laid along the route, in anticipation of improved connectivity for local communities, and the Local Enterprise Partnership has invested in Innovation Hubs, such as the Buckinghamshire New University Innovation Labs in Aylesbury and High Wycombe to provide incubation space for Buckinghamshire SMEs. Whilst this range of investment is valuable on its own terms, there are significant long-term benefits to be derived from leveraging and building on this infrastructure investment to ensure that it reaches its full potential.

Existing digital infrastructure investment also underpins many of the other themes in this Innovation Plan, for example by enabling businesses to develop digital skills via reliable broadband, encouraging businesses to join innovation clusters, and giving Buckinghamshire a grounding on which to develop new testbed and trial sites. Indicative of this, digital technologies are supporting the transformation of connectivity at the community level by enabling new models of public and private transport. Network technologies can be utilised to enable an efficient allocation of supply to meet demand, and this is expected to become evident in Aylesbury and High Wycombe where demand responsive transport usage is due to be trialled. This has the potential to positively impact rural areas where regular services may not be financially viable, as well as providing benefits in reducing pressure on local roads and limiting CO2 emissions.

Digital infrastructure technologies are already playing a role in enabling shared and demand responsive transport and other assets, but challenges remain around logistics, and particularly first-mile last-mile deliveries. Opportunities should be explored to expand local mobility pilots to include low carbon and/or automated delivery vehicles. This will be an opportunity to engage with partners offering expertise in automation, drone distribution and 5G connectivity to offer innovative solutions to these challenges, and it would be expected that this could also contribute to the development of Buckinghamshire as an area for testbeds. This is particularly relevant as the shift to online retail and home working continues to increase the volume of goods being delivered directly to homes and communities. This shift also places renewed emphasis on the requirements for reliable wi-fi and mobile phone network coverage in order to maximise opportunities for innovation.

The Buckinghamshire Enterprise Zone⁹ too, is maximising opportunities for innovation as it facilitates the strengthening of infrastructure at the Silverstone Park, Westcott Venture Park, and Arla/ Woodlands sites. The Enterprise Zone is attracting and developing new business investment, speeding up the growth and development of local enterprise, and helping to address the business-critical infrastructure needs of the sites. In relation to Silverstone Park, the LEP has invested £2m of Local Growth Funding to support the creation of the Silverstone Sports Engineering Hub, a new Innovation Centre providing businesses with access to premier aerodynamics testing facilities for sport. Local Growth funding has also supported the development of the Digital Manufacturing Centre providing an automated production facility utilising the latest additive production capabilities. Additionally, Enterprise Zone developments at Silverstone Park will provide an increase in commercial floor space and jobs. The Arla/ Woodlands site has significant scope for stimulating increased employment in the agri-food and human health sectors, to build on links established with the Arla super dairy and the wider

⁹ <https://www.bucksez.co.uk/>

food science strengths of Buckinghamshire, whilst complementing work ongoing to create a healthy-living new town. In common with Silverstone Park, this site will deliver an increase in commercial floor space and create jobs, as well as new homes. Finally, Westcott is a strategic employment site being developed as a centre of space propulsion, satellite technology and environmental engineering which builds on Buckinghamshire's significant strengths in the space sector. The LEP has invested significantly in Westcott, including in the Future Network Development Centre (£600k), the Innovation Centre (£2m), the Disruptive Innovation Space (£2m) and Satellite Applications Catapult (£2.6m) to drive forward developments in 5G, vehicle automation and drone testing, as well as providing access to resources for business to use the incubation space. As we build on these investments, the LEP will look to co-ordinate valuable partnerships between these innovation centres, businesses, and universities to bolster the area as an innovation testbed and attract further external investment opportunities.

Connected with the focus on supporting cutting edge innovation, the LEP also invested £1.6m into the University of Buckingham's Centre for Artificial Intelligence and Innovation to address the gap in the academic application and ethical research into the use of AI. In terms of the broader technological landscape, the development of AI is a huge area for development with practical applications in areas such as health technology (see the Buckinghamshire Health Research and Innovation Centre case study, as well as the Healthy Living Lab on site at Westcott) and digital manufacturing. The LEP will continue to support the AI Centre to work collaboratively with entrepreneurial businesses and especially those located within the Enterprise Zones sites at Westcott and Silverstone. This may particularly take the form of exploring options for developing a testbed and trials programme and, with the Growth Hub, supporting bids to secure development funding.

The following case study on East-West Rail focuses on fibre cable provision to support digital connectivity, and it will be important to ensure that experiences and lessons learned in this project are applied to other major infrastructure projects going forward. For example, the LEP will seek to understand current plans for, and advocate for the delivery of, similar digital provisioning along transport corridors such as HS2 to maximise the benefits which large scale infrastructure projects can deliver for Buckinghamshire.

Case study: East-West Rail

Major infrastructure schemes such as East-West Rail, Crossrail and HS2 should all present a real opportunity to build upon the successful trials conducted along the Trans-Pennine route where Network Rail telecom installed fibre infrastructure to develop a backhaul system for 5G. Not only does this allow commuters to access digital services whilst travelling, but also allows for communities close to the route to have access to a fibre spine which could be further extended to cover all local businesses and residents.

Following confirmation of £760m funding in the 2020 Spending Review and £643k Getting Building Fund grant from the LEP in May 2021, the Oxford to Bicester line has been constructed and construction is also underway on the section between Bicester and Bletchley, delivered through the East West Rail Alliance. This will allow trains to run from Oxford to Milton Keynes by 2025. In terms of delivery for Buckinghamshire, a brand-new station will be built for communities at Winslow and East-West Rail are also working on a costed plan to run a reliable service from Aylesbury to Winslow.

The project will expand the standard 24-fibre cable provision required for railway operations to a 432-fibre spine – the additional capacity will provide a step-change in digital connectivity that is able to:

Deliver backhaul services to enable local providers to deliver gigabit and superfast broadband to rural communities along the Bicester to Bletchley section of East West Rail via fixed and wireless connectivity.

- Enable increased mast connectivity for mobile network operators to extend mobile services, including 5G, to the surrounding areas.
- Support the aspiration to provide gigabit-capable connectivity to the region.

The project will deliver improved digital connectivity where commercial competition has failed to deliver infrastructure investment. It will provide 21,600 premises with gigabit-capable broadband.

Promote Buckinghamshire as an area for testbeds and innovation

Central to economic prosperity and the development of innovation in Buckinghamshire is the need to promote Buckinghamshire as an area for testbeds and innovation. Buckinghamshire is already establishing itself as an innovation playground, where the latest digital and ICT technologies can be trialled and tested in living lab experiments as part of technology-led live lab trials. There are opportunities to build on Aylesbury's Garden Town status by considering locally-led options to deploy new technologies which could support the development of a technological testbed.

In order to take advantage of the opportunities available for testbed development, the innovation ecosystem will gather expertise in digital innovation to conduct gap analysis and identify areas where testbeds and trials can drive innovation for Buckinghamshire. One example could be working with Buckinghamshire based organisations such as the Epilepsy Society, which already enjoys an international reputation strengthened by its well-established partnership with University College London and University College London Hospitals NHS Foundation. Cutting edge science has the potential to cement Buckinghamshire's reputation for transformational science and healthcare, and there are opportunities to drive forward research through big data approaches and cross-disciplinary work to accelerate growth. In terms of promoting Buckinghamshire as a testbed for digital innovation, pioneering research is key in attracting government and private funding, underpinning research that will transform the lives of a UK-wide patient cohort and develop new diagnostic and treatment approaches which could be integrated into the NHS more broadly.

Another example of opportunities to promote Buckinghamshire as an ideal testbed environment, could be exploring the applications potential of 5G within the health sector. Trials on the application of 5G have already been conducted nationally, and locally via the Healthy Living Lab at Westcott, with a consensus that 5G can deliver clinical benefits in terms of better patient outcomes, public health and operational efficiency¹⁰. Lives can remain independent and healthy for longer through assistive technologies, improvements in remote health monitoring and by allowing people to remain in their communities later in life, digital technologies will maintain vibrant and multigenerational communities. Already Buckinghamshire is driving an ambitious agenda to integrate homes with health and social care and several new housing developments are being built with assisted living technologies embedded in their fabric. The case study below gives further information on the work in this area via the existing Digital Health Innovation Centre which is a collaboration between the University, NHS Trusts, healthcare organisations and businesses from digital health technology and construction/ housing industry.

In addition to exploring opportunities to leverage 5G applications, research, and development within the health sector, the LEP will also work to establish a connected and autonomous vehicles testbed with appropriate industry and HEI partners. There are a number of innovations which might apply to the most challenging aspects of mobility, particularly 'last mile' mobility, such as end-to-end journeys between specific locations, or modal connections as part of a large journey. Automation which leverages the 5G infrastructure could help in addressing some of these challenges, perhaps via the utilisation of automated vehicles to combat transport issues between public transport hubs and key clusters of business activity.

¹⁰ <https://uk5g.org/5g-updates/read-articles/challenges-and-opportunities-for-5g-in-healthcare/>

Local area analysis and engagement with partners and the innovation ecosystem groups would be key in identifying appropriate testbed sites.

Case study: Buckinghamshire Health Research and Innovation Centre

The Research and Innovation department at Buckinghamshire Healthcare NHS Trust supports research across two acute hospitals and within the community. Buckinghamshire LEP invested £1.3m from the Local Growth Fund to support the delivery of the Stoke Mandeville Innovation Centre which was completed in September 2021. The Research and Innovation department is at the heart of clinical research and innovation, providing a large team of research experienced medical, scientific, nursing and administrative staff to both develop new clinical research and innovation opportunities and to deliver those opportunities for patients. The research hub has already supported innovation such as the utilisation of an artificially intelligent (AI) 'chatbot' that monitors health and wellness through autonomous, automated telephone-based clinical follow-up. The partnership between the healthcare trust and industry partners is driving forward innovation, particularly as the Research and Innovation Centre offers a clear external innovation map to accelerate innovation.

The Research and Innovation Centre has the strategic aim to establish a MedTech accelerator hub for the region and this offers the potential for creating partnerships with industry SMEs. As such the Innovation Centre has developed an accelerated pathway for innovation partners to focus developments on unmet strategic clinical needs. The advantage of this innovation service is that it breaks down barriers and offers support to SMEs, particularly in terms of focusing on funding and sponsorship opportunities.

Secure and enable funding

The ability to accelerate digital innovation within Buckinghamshire is reliant on the funding landscape and our ability to secure appropriate funding either through government grants, investment from industry partners, or competitive funding processes with HEI partners. The UK's withdrawal from the European Union has changed the funding landscape for higher education and we will need to ensure that digital innovation requirements are highlighted to help within the planning approach for the Buckinghamshire allocation within the UK Shared Prosperity Fund. Additionally, there is a potential concern over the resource requirements for SMEs to take part in bid application, as well as the short response timescales applied to calls from funders such as Innovate UK. Finally, the government document, *Levelling Up the United Kingdom*¹¹, states that by 2030, there will be a 40% public investment increase in research and development outside the Greater South East, so creating national partnerships and exploiting alternative funding streams will be vital.

Partnership with the Growth Hub will be valuable in terms of supporting SMEs to strengthen business relationships and apply for funding, and Buckinghamshire Business First have already sought to work with partners to develop proposals that address the needs of the SME population. The work on strengthening the innovation ecosystem will ensure that we have a pool of pre-existing relationships and project proposals with which to quickly respond to appropriate funding calls with short timescales. It will also be important to work with partners to identify current and future funding streams and to create the evidence pool required to support funding applications. To support this, opportunities for seed funding should also be sought to develop the scope and detail of emerging proposals ahead of further, large-scale funding bids.

Additionally, we will strengthen existing relationships with universities within Buckinghamshire (and where appropriate those institutions in neighbouring counties). Relationships with higher education partners open a range of funding opportunities which would otherwise not be available to SMEs, for example via Innovate UK or innovation funders such as Nesta. Establishing these partnerships as a key element of our digital and innovation strategy also contributes to the 'institutions and places' focus within the *UK Innovation Strategy* which aims to "ensure our research, development and innovation institutions service the needs of businesses and places across the UK"¹². Utilising partnerships with funding bodies such as Innovate UK also has the potential to strengthen relationships between HEIs and businesses by facilitating events where businesses can approach funders with queries, as well as other business partners/ HEIs in order to kick-start collaborative relationships. As such we would hope to see a rise in the number of applications submitted into funders which would positively impact Buckinghamshire. University R&D may also be important in stimulating private investment funding to deliver digital innovation and this is an area which requires further investigation, particularly within the context of the Levelling Up White Paper.

¹¹ [Levelling Up the United Kingdom - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

¹² [UK innovation strategy \(publishing.service.gov.uk\)](https://publishing.service.gov.uk) p6.

Data and Intelligence

Effective utilisation of data and analytics are central to our ability to understand emerging new trends, developments, and innovation gaps. We need to establish what is being measured and analysed currently, particularly in the areas we have identified as being of strategic economic importance. Analysis of this data will inform strategic decisions on where to focus innovation efforts and form innovation partnerships. The provision of the Economic Intelligence Observatory provides a single data view which can support evidence-based decision making, as well as providing an indication of trends year-on-year. Data and evidence gathered by the Growth Hub on issues facing SMEs will also allow the LEP to co-ordinate activities between businesses and additional partners.

In terms of the data being generated by businesses themselves, it may be possible that machine analytics can contribute to fuelling innovation by ensuring that businesses can learn faster, predict trends, and focus on new product development and skills requirements based on the data available. This data generation within SMEs has an additional practical application in generating the data and evidence base required to create testbeds or to move projects from pilots to broader adoption. The richness of data generation can also be leveraged to give more information about future innovation requirements – for example, data from the Aylesbury Garden Town smart city trial may be utilised to inform the direction of future innovation.

The LEP will also be pivotal in co-ordinating and curating the intelligence available within individual businesses and using this intelligence to identify and create additional valuable partnerships in pursuit of digital innovation. Key business indicators will also be monitored by the LEP board.

Action plan

This themes action plan is indicative of a starting point and key activity areas in delivering the digital innovation plan over the next three years. As the digital innovation environment is frequently changing and developing, it is expected that additional work and projects supporting theme delivery will become evident post-publication.

Theme	Action	Partners	Timescale
Developing the innovation ecosystem	Establish a Digital Innovation Advisory Forum with invited partners, to meet bi-annually and to feed directly into the LEP Skills and Growth Hub programmes.	Drawn from HEIs, the Digital Catapult and appropriate SMEs	To be re-established by Summer 2022.
	Explore the establishment of a specific Digital Innovation Award as part of the Bucks Business Awards	Growth Hub	Introduced from 2023
	Utilise the Digital Innovation Advisory Forum to support collaboration with other regional and national organisations, such as the Thames Valley Digital Forum, Innovate UK, the Knowledge Transfer Partnership and TechUK.	Regional and national organisations as appropriate	Up to 2024/25
Digital Skills	Contribute to the Skills Advisory Panel aims to explore the need for a Digital Skills Partnership and/or work to ensure that the range of local digital training provision (including apprenticeships and T levels) in Buckinghamshire is meeting the needs of local employers. Creation of a stakeholder group	Buckinghamshire Skills Hub/ Buckinghamshire Business First	2022/23
	Support the Skills Advisory Panel in the creation of a Digital Skills Partnership or Digital Skills employer group in order to involve employers in shaping local digital skills provision.	Buckinghamshire Business First	2022/23
	Explore the potential development of a Thames Valley Digital Forum supporting closer collaboration between local digital networks across the Greater Thames Valley area.	Inno Industry Partners	2022/23
	Work across a wide range of local and national partnerships including the Growth Board, England's Economic Heartland, the Thames Valley and the wider Southeast to capitalise on opportunities for developing skills and accessing talent pipelines	Growth Board, Thames Valley, Enterprise Zones, national training programmes	Up to 2024/25

Improve innovation cluster development and collaboration	Support investigations into the potential of new Development Zones, to specialise in alternative energy models and the use and application of digital technologies.	Bucks Business First Growth Hub	Up to 2024/25
	Work with partners to identify areas for clean energy project development and collaboration and identify suitable funding opportunities	BEIS, Greater South East Energy Hub, Growth Board, SME and academic partners	Up to 2024/25
	Identify gaps in the innovation ecosystem which would support cluster development and work with partners to establish sector representative groups.	Innovation leads in business and HEIs	2022/23
	Engage with significant infrastructure projects, such as East West Rail, HS2 and major house-builders active throughout Buckinghamshire to secure long term legacy benefits and opportunities for introducing innovative technologies.	Delivery partners	Up to 2024/25
Leverage existing infrastructure programmes	Explore opportunities to implement and expand local mobility pilots, including any crossover with the promotion of testbeds.	Expert leads in 5G/ autonomous vehicles/ drone distribution	Up to 2024/25
	Maximise the potential of Enterprise Zones and Business Parks by co-ordinating valuable partnerships between innovation centres, businesses, and universities in order to bolster the area as an innovation testbed and attract further external investment opportunities.	Enterprise Zones, HEIs	Up to 2024/25
	Support the University of Buckingham Artificial Intelligence Centre to work collaboratively with entrepreneurial businesses and especially those located within the Enterprise Zones sites at Westcott and Silverstone, i.e. explore options for developing a testbed and trials programme/ supporting bids to secure development funding.	HEIs, Growth Hub, Enterprise Zone partners	Up to 2024/25
	Understand current plans for, and advocate for the delivery of, digital provisioning along transport corridors such as HS2 to maximise the benefits of large-scale infrastructure projects.	Infrastructure delivery partners	Up to 2024/25
Promote Buckinghamshire as an area for testbeds and trials	Gather expertise in digital innovation to conduct gap analysis and identify areas where testbeds and trials can deliver innovation for Buckinghamshire	Innovation ecosystem	2022/23

	Work to establish a connected and autonomous vehicles testbed, building upon the innovation capacity at Silverstone and existing pilot activities close to Buckinghamshire in Milton Keynes and Oxford.	HEI partners, Satellite catapult, industry partners	Up to 2024/25
	Build on Aylesbury's garden town status and town centre regeneration plans by considering locally led options to deploy new technologies which could support the development of a technological testbed.	Buckinghamshire Council	Up to 2024/25
Secure and enable funding	Create national partnerships to maintain and support access to R&D funding as well as securing private investment funding	As identified via innovation ecosystem	2023/24
	Create a pool of pre-existing partnerships and projects to quickly respond to appropriate funding calls.	Cluster leads, appropriate SMEs	Up to 2024/25
	Work with partners to identify current and future funding streams and create an evidence pool to support funding applications – with the aim of seeking seed funding to develop proposals.	Innovation ecosystem	Up to 2024/25
	Work in partnership with the Growth Hub to encourage Angel and equity finance streams for digital innovation programmes, with particular support from BBF to identify and highlight digitally innovative businesses and support them to be investment ready.	Growth Hub, digitally innovative businesses	Up to 2024/25
Data and Intelligence	Co-ordinate and curate business intelligence to highlight challenges and opportunities within the county for the development of new digital partnerships and collaborative	Innovation ecosystem	Up to 2024/25