Introduction

The Birmingham Economic Review 2017 is produced by the University of Birmingham’s City-REDI and the Greater Birmingham Chambers of Commerce, with contributions from the West Midlands Growth Company. It is an in-depth exploration of the economy of England’s second city and is a high quality resource for organisations seeking to understand the city to inform research, policy or investment decisions.

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All Chapters of the Birmingham Economic Review 2017 can be found online on the Greater Birmingham Chambers of Commerce website: www.greaterbirminghamchambers.com or via the contact details at the end of this document.
Innovation

Innovation involves a ‘renewal process’ or change of a product, service or process through the application of new knowledge. These changes can either be incremental (i.e. minor improvements) or radical (i.e. new “engineering and scientific principles”). For instance, digital technology platforms (online portals and big data analytics) have opened up opportunities to increase the efficiency and reduce the cost of public services, as well as increase the level of engagement with citizens. In the private sector, product innovations involve improvements to key buying criteria such as reliability and aesthetics; as well as process innovations which increase efficiency, reducing delivery time and costs.

In order to incentivise innovation in both the public and private sector, it is crucial that Birmingham’s R&D and educational infrastructure creates a supportive environment. This infrastructure includes: (i) universities; (ii) business parks and technology initiatives; and (iii) enterprise zones.

Universities

Universities are critical sites for innovations, as they educate prospective workers, as well as produce technological and scientific results that can be turned into patents and products. The city’s three major universities (University of Birmingham, Aston University and Birmingham City University) actively engage in research and knowledge transfer at a regional, national and international scale. These three universities have a range of internationally recognised strengths in the fields of:

- Advanced Material characterisation and use - including nanotechnology and composites
- Energy - including Hydrogen and fuel cells, bioenergy
- Low Carbon Technologies - including low carbon vehicles
- Innovative Healthcare - ranging from medical devices to clinical trials
- Digital Technologies - including use of social media and 3-D imaging

The University of Birmingham is part of the Russell Group of leading UK universities and is ranked among the top 100 universities globally.

The Universities also offer specialised innovation services and collaborations with industry in the city. For instance, the University of Birmingham is home to Alta Innovations. Alta Innovations works with academics and business to bridge the gap between research and commercial application. They work with academics to protect their inventions and make sure that world-class technologies and innovations developed at the University of Birmingham can have the widest possible benefit.

Similarly, Birmingham City University offers Innovate for Advantage. Innovate for Advantage is aimed to support businesses to improve their performance by helping them to develop new products and services and to streamline processes. It taps into a range of expertise such as design, engineering, digital technology, e-business, social enterprise, business process improvement, marketing, web design and green technologies.
University College Birmingham also has excellent links with industry, particularly in the food sector. While Aston University has a number of initiatives in place such as 10,000 small businesses, their Business School’s Business Charter Gold Award and the Aston Centre for Growth.

**Business Parks**

As well as the role of universities mentioned above, Birmingham has a number of high tech business parks and initiatives that are helping to foster innovative practices and high tech industry. These business parks and initiatives provide crucial opportunities for business to network with each other and key stakeholders, broadening their resource base and maximising their opportunities. This is particularly valuable for smaller, younger and thus more vulnerable firms.

The business parks and initiatives include:

- **Innovation Birmingham Campus at Birmingham Science Park Aston** - which is an increasingly high tech and young-entrepreneur focused science park in the centre of Birmingham.
- **Birmingham Research Park** - at the University of Birmingham. A number of spin-outs from the city’s universities have started on these sites, with many still located there.
- **Longbridge Technology Park and Innovation Centre** - Situated on the former MG Rover site, this is a key link in the Central Technology Belt (CTB), the high technology corridor running along the A38 from the centre of Birmingham southwest to QinetiQ in Malvern, Worcestershire. Other developments along the CTB include the Queen Elizabeth hospital - a leading centre for healthcare R&D with a key role to play in the development of the city’s life sciences sector.
- **Birmingham Science City** - Birmingham was awarded Science City status by the Chancellor of the Exchequer in 2005, in recognition of the city’s strong science-based assets. The Birmingham Science City partnership provides a means to collaborate amongst the research community, private and public sectors, leading to the commercialisation of research strengths.
- **Institute of Translational Medicine** - Birmingham Health Partners led the development of a new Institute of Translational Medicine (ITM), a new world class clinical research facility in Birmingham, opened in 2015. The centre will help progress the very latest scientific research findings from the University of Birmingham into enhanced treatments for patients across a range of major health issues including cancer and liver disease. The Institute will build on Birmingham’s excellent track record in clinical trials by increasing capacity and enabling more patients to be co-located alongside clinicians and researchers. It will also make it easier for both SME and large pharma and biotechnology firms to work more closely with clinicians and academics, bringing additional investment into the city.
- **Birmingham’s Smart City Commission** - The Commission has representatives from academia, business, health, transport, education, utilities and local government. It was established in 2012 to drive the long-term vision and strategic leadership that will lay the foundations for Birmingham’s future. It shapes technological solutions and partnerships to deliver a joined up
approach to deal with the immediate and future challenges the city faces around:
  o Sustainable economic growth
  o Connectivity and infrastructure
  o Climate change and the green agenda
  o Digital inclusion and skills

**Birmingham City Centre Enterprise Zone**

There are also future plans to support innovation in Birmingham through an Enterprise Zone.

Birmingham city centre Enterprise Zone comprises 26 sites across the city centre covering 68 hectares in seven clusters at Westside, Snow Hill District, Eastside, Southern Gateway, Digbeth Creative Quarter, Birmingham Science Park Aston and the Jewellery Quarter. The Enterprise Zone is one of the major projects for the GBSLEP, with the potential to create 40,000 new jobs, add £2 billion a year to the economy and make available 1.3 million square metres of floor space over the lifetime of the project.

A simplified planning regime has been introduced across the whole of the EZ in addition to Local Development Orders (LDO) being used in Digbeth and Birmingham Science Park Aston, which remove the need to apply for planning permission for a wide range of changes of use, making it easier for growing small businesses to be mobile. The EZ provides superfast broadband focused on the clusters of IT, creative and digital businesses in Digbeth, Eastside, the Jewellery Quarter, Southern Gateway and St George and St Chad Quarter.

Over its 25 year lifetime, the retained uplift in business rates will enable investment in a range of infrastructure, business support, employment and skills and access to finance projects to support its priorities.

**Professor Simon Collinson, City-REDI, University of Birmingham**

Innovation is arguably the major driver of economic growth, within firms, across regions and the global economy as a whole. Firms succeed or fail on the basis of their ability to (1) continuously create new products and services that customers are willing to pay for, and (2) develop processes for delivering these products and services more cost-effectively. Both underpin improvements in productivity and GVA levels. But firms do not innovate in isolation. They rely on regional, national and/or international networks of partner organisations, including suppliers, contractors, universities and consultancies that provide components, technology, skills, knowledge and expertise as an input into the innovation process.

Places compete to attract inward investment and skilled people, partly on the basis of the competitive advantages they can offer as distinctive regional innovation systems (RIS). This includes universities as part of the science and
technology asset-base. The role of universities is emphasised in the Government’s Industrial Strategy and related reports, including the Science and Innovation Audit’s (SIAs). The regional SIA highlights Warwick University (including Warwick Manufacturing Group), JLR, the University of Birmingham and the Manufacturing Technology Centre (MTC) as ‘nationally and internationally significant science and innovation assets’. Both universities were recently ranked in Europe’s 100 most innovative universities by Reuters and account for two-thirds of all Innovate UK funding into the area over the 2010-15 period.

Science and technology (S&T) sectors employ around 350,000 employees in the region covered by the SIA (20 percent of jobs), but these are growing more slowly (4 percent over 2009-2015) than the national average (9 percent growth). Many are employed in one of the R&D ‘hot spots’: advanced manufacturing technology (including materials, low carbon transport and data systems); digital technologies (computer programming, IT consulting, games software and data processing); next generation transport (automotive, rail, aerospace); energy storage and systems; construction; and health and life sciences (overseen by Birmingham Health Partners).

The challenge for the region is to build on these existing areas of RIS strength by:

1. attracting new investment from existing firms, such as JLR, and encouraging them to focus global R&D activities in specific technology areas in the city-region;
2. attracting new firms, particularly foreign direct investment, to locate R&D-intensive activities in the region, to complement the existing specialisations; and
3. promoting spin-offs from universities alongside start-ups and ‘scale-ups’ in the target areas of S&T to build agglomeration economies, or clusters, with economies of scale.

Inward investment and a healthy local business birth rate are important attractions for skilled, creative people, who in turn drive innovation in and between firms. To promote both effectively, the Birmingham city region must clearly and precisely identify its competitive advantages as a distinctive location for particular areas of S&T, and focus resources on these distinctive assets and capabilities. This also means linking the many components of innovation to better-understand and proactively develop the RIS as complex ecosystem. Infrastructure, large and small firms, a wide variety of skills, including professional and creative talent, financing mechanisms, universities and related clusters of R&D all interact and need to be understood in relation to each other.
Judith Armstrong, CEO, Millennium Point

Historically, when discussing innovation, the UK’s second city is never too far from topic. Whether it’s the cooker or the first mass-production of steel nib pens, we’re rarely short of a story about innovative Brummies—but how can we ensure its’ ongoing security in Birmingham’s future?

Recent reports indicate that by investing in science, technology, engineering and maths (STEM) we innovate and drive productivity, which in turn increases Birmingham’s economic growth. The ‘Science & Innovation Audit’ (SIA) for the West Midlands, published in June, recommends “leveraging” science and innovation to stimulate new products and processes that will help tackle the gap in productivity between a business’s physical inputs and output. Birmingham City University and the Regional Observatory published a digital and tech deep dive report in May, which estimated that tech and digital alone will add £2.2 billion to the West Midlands economy by 2025 with an additional 84,000 jobs. It also cited innovative use of digital technologies as a key factor to create value and boost competitiveness and productivity. So, we know there is a place for innovation in our future but the question remains, how? One solution is by investing in our young people.

A widening skills gap sits between today and Birmingham’s innovative future with a significant proportion of new roles requiring job specific higher-level skills and qualifications. In addition to improvements driven by changes in the curriculum, we must collaborate to bridge this gap by investing in initiatives that raise awareness of STEM and encourage pursuit of it in education. Beyond that, we must ensure that future innovators remain in our city by offering job security and appeal on completion of their education and pride in the city.

In our capacity as a charity supporting STEM initiatives in the region, we’re proud to fund an annual young innovator prize, awarding a scholarship at BCU. We’re also the founding sponsor of HackTheMidlands—a ‘hackathon’ for multi-ability programmers to transform ideas into tangible projects in 24 hours. Its organiser, Tom Goodman, is a 20-year old undergraduate programmer from University of Birmingham. With our support, his innovative approach to encourage peers to pursue interests in STEM in a supportive environment stimulates talent for future projects. However, it’s not just about them.

Organisations who engage young people through support of such initiatives gain themselves a gateway into future innovation and business growth: for young people to contribute their talent and ideas and develop skills to craft new products and processes which will drive productivity. Our initial support of HackTheMidlands led to longer term collaboration after we commissioned founder Tom to develop a digital art/legacy piece resulting in a networking visualisation called LINC. This tool displays mutual interests of guests at events to help them engage with like-minded attendees—innovating how they are able to network.
We're a city of a 1000 trades and a continuously innovative future is within our grasp. Support initiatives that invest in the talent of our young people, and join us in setting #BrumInMotion.

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