

## **What Role Can Universities Play in Supporting Economic Competitiveness?**

### **Introduction:**

The economic importance of higher education and the contribution that it can make to the development of both national and regional economies is well recognised.

Higher education is seen as being of key importance in the creation and transfer of knowledge to the UK economy through its teaching, research and other activities. The sector has a pivotal role to play in ensuring the country's economic competitiveness.

In this 15 minute slot I briefly discuss some of the key areas in which universities play a role in supporting economic competitiveness.

### **Sector figures:**

Universities in the UK contributed £3.3 billion to the economy in 2010-11 through services to business, including commercialisation of new knowledge, delivery of professional training, consultancy and services. Analysis by HEFCE of the eleventh annual 'Higher Education – Business and Community Interaction' (HE-BCI) survey shows that the total value of the services which UK universities provide to the economy and society increased by 7 per cent in 2010-11, from £3.1 billion in 2009-10 to £3.3 billion.

In addition to this, the 2009 Universities UK report by the University of Strathclyde on 'The Impact of Universities on the UK Economy' reported that, in terms of its wider economic impact, the HE sector generated over £59 billion of output per annum.

The HEFCE HE-BCI survey 2010-11 also showed that, despite wider economic uncertainty, spending on university services by large business increased by 7 per cent, from £587 million in 2009-10 to £629 million in 2010-11. Universities are stimulating economic growth and contributing to public services and society.

The report also finds encouraging signs of the rising value of UK knowledge exchange. This is illustrated by increases in income to universities from facilities and equipment – such as wind tunnels or digital media suites – where income grew by 12 per cent over the previous year, to £129 million in 2010-11.

### **Licensing and spin outs:**

In 2010-11 268 new businesses were set up based on the world-class research carried out by UK universities, bringing the total number of active spin-out companies to 1,262. These companies employed around 18,000 people and turned over nearly £2.1 billion during the year. The University of Birmingham alone has a 'portfolio' of spin-out companies based on intellectual property from the University currently valued at £200 million.

These are managed by Alta Innovations Ltd who are a profitable technology transfer company for the University of Birmingham providing expert technology transfer services to University researchers and external businesses. It also operates Birmingham Research Park which is a joint venture with Birmingham City Council which links local businesses and agencies to the University and the teaching hospital trust.

Alta and the Research Park were created to facilitate technology transfer in 2008 and have an annual turnover of £3 million. They typically file 20 new patents per year and create significant license income. As well as helping to establish new 'spin-out' companies, they also assist in facilitating around 100 consultancy projects and 20 IP licences per annum between the University and business.

### **Knowledge exchange with SMEs and large corporates:**

In terms of collaboration, the University is proud of the Science City Research Alliance (SCRA) which comprises six projects jointly operated by the Universities of Birmingham and Warwick in three key research themes of Advanced Materials, Energy and Translational Medicine.

The capital funding in state of the art facilities within the two institutions underpins the delivery of world class research and development activities and stimulates collaboration and knowledge exchange with business (particularly regional SMEs) – enabling access to research infrastructure and capability that would not otherwise be available to them. To date key outputs include:

- £65m of new research
- £3m+ of Business Engagement
- 240 new jobs
- 110 new research collaborations
- 670 trained staff
- More than 100 graduates employed within the region
- 20 new patents
- 9 new businesses created

**Strategic partnerships and collaborative R&D built on research excellence:**

For several years, large companies have been adopting a policy of ‘open innovation’ with universities, largely to replace internal research laboratory facilities. Initially, they operated this route to new ideas in an ‘ad hoc’ and project-specific manner.

More recently however, companies have realised that access to inventions and new ideas needs to be more formally embedded as part of their supply chain for new products and services. This is leading them to seek more structured and 'professional' long-term relationships with those universities they decide are key to their business.

At the University of Birmingham we have developed a number of such relationships. One which we are particularly proud of is a 20 year University Technology Partnership (UTP) with Rolls-Royce. This partnership is built around internationally leading metallurgical research including major projects on the use of advanced materials for turbine blades which has provided the company with manufacturing cost savings of several £million per annum and with a competitive advantage in the aerospace industry.

In addition to this, Birmingham is involved in a unique partnership with the Universities of Nottingham and Loughborough and The Welding Institute along with core industrial partners Rolls-Royce, Airbus UK, HP and Aero Engine Controls at the Manufacturing Technology Centre in Coventry.

The £40 million centre in high-value manufacturing is unique both in its formulation (as an arms-length company limited by guarantee with multiple partners) and the breadth of capability that the Centre offers which enable it to address key manufacturing challenges encompassing intelligent automation, tooling and fixturing, advanced joining, netshape manufacturing, electronics and computational engineering with the ability to integrate programmes across these themes in order to deliver production scale solutions for industry. The creation of the Manufacturing Technology Centre and the research contribution has already delivered 140 new jobs and support to over 100 businesses.

The University of Birmingham is also uniquely co-located with the University Hospitals Birmingham NHS Foundation Trust whom they have formed a partnership with called the Birmingham Health Partners. The aims of this partnership are to advance medical research and improve patient outcomes. Together, the Birmingham Health Partners are developing an Institute of Translational Medicine which will optimise clinical academic delivery in translational research.

This research will render laboratory findings directly into advancements in patient care and will act as a focal point for partnerships with the private sector to accelerate the 'concept to commercialisation' of new developments.

The Institute of Translational Medicine will fuel partnership projects in key research areas including cancer, immunology and infection, experimental medicine and chronic disease. It builds on a long history of collaborative achievement to strengthen and develop the global reputations of both institutions.

### **International profile of universities**

The international profiles of Universities attract inward investment, particularly where the university has a strong reputation related to the business area. The University of Birmingham is actively involved as a catalyst for supporting the participation of UK SMEs in European funded programmes. The EU is using this dimension to boost SME participation in the Framework Programme. The University interacts with a number of large companies through EU funded projects.

The University is also involved in focussed communication of its key capabilities to UKTI overseas posts in strategic geographic markets such as China, India and the USA (Chicago and the Midwest).

This has resulted in a number of opportunities where the University has been able to play its part in supporting UKTI investment and R&D opportunities for the UK from technology focussed businesses from India, Brazil, Belgium and the UK.

Finally, the University launched a centre in Guangzhou in September 2011 in coordination with the Guangzhou municipality to facilitate joint research and education initiatives in the area. This is the University's 'signature' engagement in China and will also provide a focus for business engagement and knowledge transfer activity for the University with Chinese owned companies in research areas relevant to the University's strengths. Significant activity will be developed around clinical trials and engineering, automotive and energy.

### **Regulation and public policy**

Research from UK universities enhances the economic environment through regulation, infrastructure and public policy. At the University of Birmingham we are informing both UK and EU government agencies with respect to environmental regulation of nano-materials. We are also informing infrastructure management through our Real Research group, so that it is operated more effectively and efficiently.

## **Entrepreneurship skills**

UK universities also play an active role in training entrepreneurial academics to realise the commercial potential of their research and prepare students for working with, or in, business. In 2011-12, graduates established over 2,800 new enterprises to capitalise on the knowledge and experience gained while studying. Universities support these enterprises by embedding enterprise in degree courses, and also by providing advice and facilities for graduates to set up and grow their businesses, and by putting them in touch with investors looking for opportunities.

At Birmingham we run a highly successful scheme in conjunction with KPMG and their ground-breaking school leavers' programme. Under the scheme, students enter onto a six year programme in which they will gain work experience at KPMG, take a BSc honors degree in Accountancy and Finance at the University of Birmingham's Business School and gain a professional accountancy qualification. They also receive a salary of around £20,000 and have all their tuition fees and student accommodation paid for by KPMG. The University of Birmingham offered 50 places on the scheme in September this year.

## **Wider economic impact of the sector**

We must also consider the wider impact that universities have on the economy. Universities are large recruiters; the University of Birmingham employs some 6,000 members of staff, making a significant contribution to the City's and the Region's stock of highly skilled workers. Within this, 51.8% of the University's workforce are women, compared to 44.9% of the Region's workforce. The employment effect of the University's impact is to almost double the number of directly employed - for every job in the University there is a second job in the local economy supported by spending attributable to the University.

UK universities also attract a large number of international students who bring with them direct tuition income and disposable income to spend in the UK economy. Many of these students will graduate from their university and secure jobs in the region in which they studied, ensuring that there is a new flow of highly skilled workers in the local economies surrounding universities.

The knowledge economy of those areas near to universities also benefit from improving the skill levels of the existing workforce through programmes of continuing professional development or offering courses in professional qualifications.

## **To sum up**

To conclude, it is evident that UK universities play a pivotal role in supporting economic competitiveness. The role is in the local and regional economy as well as being integral to the competitiveness of our national and international economic strategy. Our 2007-08 economic impact report demonstrated that the University of Birmingham has an impact on the West Midlands economy to the tune of £779m. Nationally, universities contribute to £872m of collaborative research, £1bn in contract research and a further £370m in consultancy<sup>1</sup>.

The University of Birmingham is open for business and I encourage the audience to suggest how the university could support business growth and regional economic development in the future.

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<sup>1</sup> 2010/11 HE-BCI data