



Universities Scotland response to the Industrial Strategy green paper

Summary

The Scottish Higher Education sector warmly welcomes the Industrial Strategy and the recognition of the potential contribution of Higher Education Institutions (HEIs) to future economic growth across the whole of the UK. Scottish HEIs are committed to making our contribution to productivity and economic growth, and look forward to working with industry, Scottish Government, UK Government, and the public sector to achieve this impact.

To realise this potential we have identified specific recommendations for UK Government, along with key areas where we would welcome commitments from, and further dialogue with, Scottish Government.

Recommendations for UK Government

- The final strategy should be clear where activities are intended to be UK-wide or devolved. Clarity will enable Devolved Administrations to shape and engage with opportunities and use the proposed Ministerial Forum to co-ordinate action.
- In implementing the strategy, there must be a recognition of the diversity across the UK. There is diversity of structures to promote economic growth and productivity; of key sectors that can drive growth; and the concentration of R&D active enterprises.
- The proposed Ministerial Forum will be valuable in bringing clarity and co-ordination of action across the UK and to ensure that UK strategy reflects the economic needs across the whole of the country. We strongly recommend that UK Government formalises this offer and works with Scottish Government to understand the best representatives, format and frequency of meetings.
- Continued investment in the excellence of the university R&D base will be a prerequisite to the success of the strategy, this will be achieved primarily through the dual support system and investment in postgraduate training.
- The welcome focus on 'place' in deciding on investment should be combined with a continuing focus on excellence.
- Consideration should be given to how the location of national, excellence-based institutes and facilities can drive economic growth directly. Within this, the creation of national institutes with a limited number of sites distributed across the UK should be considered.
- Across all Pillars, UK and Scottish Governments must incentivise and support businesses to increase demand to engage with UK HEIs, particularly given the uneven distribution of headquartered companies across the UK. Driving up

demand from businesses of all sizes and across sectors will be important to boost innovation and realise business growth.

Areas where we would seek specific commitments from (or further discussion with) Scottish Government

- This green paper is highly relevant to current Scottish Government policy priorities (including the Enterprise and Skills Review, Trade and Investment Strategy, and sector-specific strategies). There is a real opportunity to realise synergies to improve productivity and inclusive growth in Scotland. We would strongly support the Scottish Government's engagement with the proposed Ministerial Forum to maximise opportunities for economic growth in Scotland.
- Consistent with the emerging findings of the Enterprise and Skills Review, there should be strong alignment of Scottish agency actions to support industry and the HE sector in Scotland to seize the opportunities, including meeting industry needs in areas such as skills and support for international links. For our part, we will be pursuing discussions with industry to work together to articulate our world-leading strengths and proposals to support innovation-led growth in those sectors.
- To fully achieve the potential of the HEI contribution to economic growth there must be an enabling environment for HEIs to flourish across their key missions (research, teaching and knowledge exchange). Sustainable funding of the sector, along with ensuring the integrity of the UK-wide dual support system, is integral to achieving this.

Universities Scotland response to the Industrial Strategy

We welcome the UK Government's Industrial Strategy and the recognition of the important contribution Higher Education Institutions (HEIs) can make to the UK's future economic growth and in ensuring that growth and its benefits reach all communities across the UK. We are very supportive of the Industrial Strategy and we look forward to further dialogue with both UK and Scottish Governments to maximise our contribution.

The following response answers specific questions from the consultation from Pillar 1 and provides comments under other Pillars.

Pillar 1 – Investing in science, research and innovation

5. What should be the priority areas for science, research and innovation investment?

A continued focus on excellence is important and that should be combined with a focus on place to leverage additional growth in the cities and regions where that excellence is located and beyond.

In doing so, Pillar 1 is vital to support that excellent research base and HEIs therefore welcome the additional investment in research and innovation announced in the 2016 Autumn Statement. Research excellence underpins much of the contribution that HEIs can make – including knowledge exchange and international partnerships. While we do see immediate economic impact of the research base, and we welcome steps to enhance this, critical elements of the HEI contribution are long-term (whether the attributes of

graduates or fundamental research) and should be viewed as long-term investments. For example, 15% of the economic slowdown in the 1970s could be traced back to the decline in 'knowledge stock' caused by the Second World War¹. We welcome the approach that UK Government is taking but would restate that increasing the priority of 'applied' or later TRL research should complement, and arise from, our world-leading research base rather than being a binary choice in competition with it.

The dual support system is critical in enabling HEIs to meet the ambitions of the Industrial Strategy

The dual support system is recognised as a critical underpinning of the UK science base to enable HEIs to meet the ambitions of the Industrial Strategy. Both UK and Scottish Government must therefore maintain the health of the UK-wide dual support system. We strongly welcome the significantly increased funding for R&D under the strategy and support an increase in block grant funding for all UK HEIs so that they can play their full part. It is critical that institutions have the freedom to make strategic decisions about research, support emerging areas and create the right environment and networks to deliver impact – which all HEIs are committed to do. To leverage this UK-wide opportunity into Scotland, we would strongly recommend an uplift in REG (block grant funding) as a principle (or as a match to an increase in the English equivalent, QR) to enable Scottish HEIs to compete at the UK level.

The McMillan group's recent work² on knowledge exchange demonstrated that the UK is performing at a world-class level in commercialisation of research (i.e. licensing and spin-outs). This is a component of HEI knowledge exchange activity, which all Scottish HEIs have a strategic commitment to and is part of delivering beneficial economic impact. Commercialisation of research is not the only mechanism of knowledge exchange, nor is it the only means by which HEIs contribute to economic growth. From this broader perspective we note the success of HEIF³ and the Scottish equivalent UIF (Universities Innovation Fund)⁴ and would support an increase. UIF is aligned to strategic priorities of the Scottish Government as well as the goals of the Industrial Strategy, and allows a flexible approach to delivering impact, based on what works best considering institutional strengths and the surrounding environment. We would recommend that Scottish Government should use any Barnett consequential from an increase in HEIF to increase the total value of UIF.

Increasing opportunities for talent, and improving access to talent

We strongly support an increase in PhD and Fellowship positions at a UK level, delivered through UKRI, and would welcome additional scope to create positions in collaboration

¹ Salter AJ, Martin BR, The economic benefits of publicly funded basic research: a critical review, Research Policy (2001)

² McMillian Group, University Knowledge Exchange (KE) Framework: good practice in technology transfer (2016)

http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/Independentresearch/2016/University,KE,framework,Good,practice,in,technology,transfer/2016_ketech.pdf

³ Ulrichsen TC. Assessing the Economic Impacts of the Higher Education Innovation Fund: a Mixed-Method Quantitative Assessment (2015)

⁴ Universities Scotland, 'Research Impact in the Year of Architecture, Innovation and Design' (2016)

<http://www.universities-scotland.ac.uk/publications/research-impact-in-the-year-of-architecture-and-design/>

with industrial partners. It is, of course, vital that within that expansion the funding per PhD or Fellowship is maintained.

While the increase in STEM focussed PhDs and Fellowships is important, the increase in such positions should include all areas of research. Non-STEM subjects have economic impact by increasing the pool of highly skilled individuals for nationally important industries (including the creative industries) and to recognise the important contribution that non-STEM experts can make to interdisciplinary research and businesses. Such research will also deliver valuable cultural and societal impacts. In this context, social sciences or arts and humanities research considering critical social issues (for instance, how to manage disruptive technical change) will be an important component of realising the ambition to see equitable growth across the UK.

Scottish HEIs are working hard to embed a culture of impact and entrepreneurialism so students and staff can contribute to the economy as future research and industry leaders. We have already raised concerns⁵ that Scottish-domiciled individuals will not be eligible for postgraduate doctoral loans and the potential impact on UK-wide growth of such a restriction therefore it will be critical that new opportunities are available across the whole UK.

At the UK level we support the expansion of Knowledge Transfer Partnerships (KTPs) and could envision more KTPs targeted towards non technology focused themes such as business management (to maximise the expertise in Scottish business schools, as per pillar 4), digital or design. We would also recommend the development of a UK-wide sabbatical scheme to provide funding to allow academics to establish relationships and deliver significant industrial engagements (including where this might require individuals to work away from their 'home' university) or to focus on spinning out companies.

Supporting recruitment and retention of international staff

The world-leading quality of HEI research is fundamental to the UK's ability to attract leading minds and as a partner of choice for current and emerging research nations. Universities already work hard to attract the best talent to their institutions and would welcome new funding streams to enhance their work. To achieve this it will be necessary that the future immigration system recognises and enables talent to flow into HEIs. At the moment there must be a focus on retaining top international talent within Scotland; confirming the rights of EU staff and their dependents within the Brexit negotiations will need to be a high priority to ensure this.

Providing sector-specific funding

We have received positive feedback on interventions such as the Biomedical Catalyst. Feedback indicates that such UK funds should focus on lower TRL-level research and those managing the funds must be enabled to take high-risk decisions. Across all sectors our

⁵ <http://www.universities-scotland.ac.uk/briefing-evidence/response-department-education-consultation-postgraduate-doctoral-loans/>

members have highlighted a scarcity of proof of concept funding that needs to be addressed under this strategy

Sector-specific funds which require industry-match should be sensitised to local conditions. The level of BERD in Scotland is consistently lower than many regions of England⁶ so it will be important that such interventions recognise regional distinctiveness if a truly UK-wide perspective is to be achieved. In Scotland, BERD is dominated by the manufacturing industry⁷, and combined with the Scottish Government's Manufacturing Action Plan there could be scope to build on these developments through the Industrial Strategy.

Focus should also be given to emerging sectors such as the Blue Economy. Scottish HEIs can play a key role in both identifying and shaping future sector opportunities long before there is industrial critical mass.

Consideration should also be given to supporting work where a multi-sector approach is needed and / or where enabling technologies must play a part. Scotland has a number of strengths in cross sectoral and enabling technologies which include digital and robotics (a strong component in the Edinburgh City Deal), Quantum Technologies, Photonics and Sensors. Our Innovation Centres cover industrial applications that draw on a number of disciplines and enabling technologies.

URKI must work for the whole UK

UKRI must be created in a manner that is sensitive to devolved interests – while we have received assurances that this will be the case it is critical that the architecture of the new body enables this. Lord Prior made a number of commitments on behalf of UK Government in the recent debate on the Higher Education and Research Bill including a commitment to 'regularly to consult on strategy with devolved administration colleagues into guidance from the department to UKRI'. We look forward to seeing this guidance.

Capital investment in research facilities

We support the recommendation that UKRI could develop a new capital spending roadmap to support fundamental research. UKRI must ensure it has robust mechanisms to decide on capital investments. Capital investment in research facilities is critical to innovative capacity and such investment has high rates of return on the investment⁸. We would strongly encourage that UKRI considers the lessons of the recent National Audit Office report⁹ on BIS capital investment decisions to create transparent and fair processes. Scottish HEIs average just 5% of Research Council capital funding over the past 5 years

⁶ NCUB, Capability, Culture and Change: Growing the Value of R&D in Scotland (2015)
<http://www.ncub.co.uk/what-we-do/gvs.html#report>

⁷ <http://www.gov.scot/Topics/Statistics/Browse/Business/RD/KeyFacts>

⁸ BiGGAR Economics, Economic Impact of the Capital Investment Plans of the Russell Group Universities (2014)
<https://www.russellgroup.ac.uk/media/5256/economic-impact-of-the-capital-investment-plans-of-the-russell-group-universities.pdf>

⁹ National Audit Office, 'BIS's capital investment spend in science projects' (2016)
<https://www.nao.org.uk/wpcontent/uploads/2016/03/Capital-investment-in-science-projects.pdf>

compared to 11% of Research Council project funds¹⁰ and 11% of the HEFCE-led Research Partnerships Investment Fund (RPIF)¹¹. Often, project funding follows capital investment so this disparity, while not questioning individual investment decisions, gives an indication of the concerns in the sector that Scotland, despite demonstrable research excellence, receives a low proportion of capital spend.

6. Which challenge areas should the Industrial Challenge Strategy Fund focus on to drive maximum economic impact?

Scottish HEIs can contribute across all the challenge areas and we welcome the work to date. We are seeking an active and creative dialogue with industry in Scotland and beyond with interests in these sectors and how we might support the success of those industry sectors under Pillar 8.

Our recent dialogue with industry and other partners through processes such as City Deal suggest that challenge calls should focus on strategic questions where answers will support inclusive growth over the medium to long term. For instance:

How do we prepare for an era of digital disruption which will include the adoption of new augmented intelligence which will dramatically disrupt our labour market?

How do we provide more energy and less CO2 and achieve net zero emissions?

How do we utilise our island coastline and distinctive natural assets to drive economic growth and export opportunities?

How do we take people out of poverty and homelessness, to grow the economy?

We believe that UK Government should consider other challenge areas (and industry sectors), not mentioned in the green paper, to ensure that the strategy is attuned to the diverse economies across the whole of the UK. We are supportive of extending the Challenge Fund to areas considered in the consultation events, which are technologies for the creative industries and integrated and sustainable cities.

7. What else can the UK do to create an environment that supports the commercialisation of ideas?

HEIs can provide the right places to bring together the right people for knowledge exchange

A recurrent finding of reviews into commercialisation is the importance of people, networks and relationships. HEIs having the capacity to provide space and support to bring together academics and businesses, particularly recent graduates (who are associated with higher total entrepreneurial activity) would be an important method of enabling sharing of knowledge and perspectives. An appropriate funding landscape is needed to create the right spaces for innovation, including both grant funding and a review of the VAT rules on academic building.

¹⁰ <http://www.rcuk.ac.uk/about/aboutrcs/research-funding-across-the-uk/>

¹¹ National Audit Office, 'BIS's capital investment spend in science projects' (2016)

<https://www.nao.org.uk/wpcontent/uploads/2016/03/Capital-investment-in-science-projects.pdf>

It is vital HEIs have the resources to work to establish relationships between the institution and major companies. Such relationships, along with appropriate incentives for these businesses, can create an environment for company co-location with institutions and knock on local benefits including supply-chain opportunities, career opportunities to retain graduates, and attracting highly skilled staff into the local area.

Universities want to deliver impact; it is important to recognise that the best route varies

Scotland's universities are ambitious to increase beneficial impact and drive inclusive economic growth. We want to enhance existing, and develop new, partnerships with industry to deliver the ambition of the Industrial Strategy. To do so requires an enabling environment, which includes allowing an institution to use resources to respond to, and shape, local conditions and partnerships. Currently, on average research conducted with industry does not meet universities' full economic costs¹². The recent National Centre for Universities and Business (NCUB) Growing Value Scotland Taskforce report stated that if universities were to focus more on economic development this would *require additional funding from the Scottish Government and should not come at the expense of research funding*, adding that a *top down approach is not appropriate* to incentivising universities to work with businesses.

We note that Government will commission research on different institutions' principles and practices on commercialisation of intellectual property, and it is unclear if this is at UK level or England only. Scottish HEIs are working hard to deliver commitments to produce standard templates for high volume interactions with Scottish businesses and a statement of principles on spin outs. We would be happy to share this work. We would, however, underscore that a 'one size fits all' approach to commercialisation is inappropriate. Bespoke approaches are needed to meet the diverse demands of different businesses or sectors. The proposed research will need to be designed to be sensitive to identifying best practice which meets the needs of both businesses and HEIs.

There is a need to stimulate the demand side to encourage businesses to innovate and work with HEIs

As noted in the recent Science and Technology Committee (STC) report on their managing IP and technology transfer offices (TTO) inquiry, there has been a consistent focus on the 'supply side' of commercialisation of research rather than the 'demand side'. There is a need to stimulate the demand side (for businesses to want to innovate and grow, and therefore work with HEIs), which should be an underpinning focus across all the pillars of this strategy.

We note that UK Government recently concluded a review of the R&D tax regime finding it 'effective and internationally competitive' but would welcome the efforts to improve simplicity and awareness of tax credits amongst SMEs. The business base in Scotland is heavily SME dominated and we often see that an initial (often small-scale) engagement

¹² Scottish Funding Council TRAC data 2013-14

between a business and HEI leads to ongoing work. It would be useful to maximise awareness of the benefits (whether general, in terms of potential growth, or specific in terms of tax credits) available to achieve that initial work.

8. How can we best support the next generation of research leaders and entrepreneurs?

There is significant work in this area within institutions which highlights the importance of block grant funding to allow HEIs to respond quickly to new opportunities and to strengthen the environment for the next generation of research and industry leaders.

Researcher development opportunities are important to preparing researchers for future careers that are dependent on partnership working. Strong multidisciplinary teams will be critical to future research so there is scope to develop programmes to help students engage with new teams and to network effectively, this could be through incentives to bring together students and other researchers in multidisciplinary teams, perhaps across institutions, framed by challenges. Partnerships with industry to co-create PhDs are important to enable the transitions of highly skilled and talented individuals between academia to industry. There may be scope for funding PhD cohorts in recognised areas of local strength to support cluster building.

Scottish HEIs are committed to enhancing the enterprise and entrepreneurial skills of our students and have all agreed a 3-year plan (*Making it Happen*¹³) to do more, across eight cross sector actions. We are making good progress across these actions, including delivering a project with QAA Scotland to develop all students' entrepreneurial mind-sets and attributes and embed this within our curriculum.

Scottish HEIs also have successful pan-Scotland models such as Converge Challenge¹⁴ which support entrepreneurialism amongst staff and students which could be beneficial to other areas of the UK. We would also highlight the important of venture capital availability in supporting entrepreneurs to get started and the need to ensure this is available across the UK.

9. How can we best support research and innovation strengths in local areas?

We would welcome additional funds, at a UK competitive level, to create world class research clusters for research and innovation, whether led by universities or businesses. Such funds should be additional, and complementary to proven interventions such as RPIF.

In supporting research and innovation at local level it is important that this can be done on the basis of funding for excellence wherever it is found because excellent research has

¹³ Universities Scotland, Making it Happen (2015) <http://www.universities-scotland.ac.uk/publications/making-it-happen/>

¹⁴ BiGGAR Economics, Evaluation of Converge Challenge (2017) <https://www.convergechallenge.com/blogs/news/2017-03-23-success-of-universities-entrepreneurship-programme/>

been demonstrated to deliver impact¹⁵. The aim of the Industrial Strategy of creating the conditions for growth, rather than ‘picking winners’ is correct and therefore working with HEIs to understand areas of research strength and existing industry linkages and opportunities will be necessary to drive growth across places. The Science and Innovation Audits (SIAs) provide useful information on particular local strengths. The evidence currently available can be used to identify appropriate investments to support research and innovation in local areas. However, given that the SIA programme is at a relatively early stage, we encourage consideration of additional evidence in considering place and excellence so that parts of the UK that have not yet pursued a SIA can participate in the development of proposals in the coming months and years.

New research institutes should be tied to HEIs with demonstrable relevant excellence and consideration should be given to how the choice of place for institutes can drive city / region growth. Where based on proven excellence, distributed models for national institutes, with a limited number of sites across the UK, should be considered. Situating increased research activities within universities will ensure new research is located in a wider environment, whether to provide professional support (for knowledge exchange etc.), linkage to international partners through pre-existing HEI networks or to facilitate interdisciplinary research there is an opportunity to build on current strengths to establish focussed teams within HEIs.

We believe that the proposed Ministerial Forum would be a useful mechanism to support the development of the Strategy across the whole of the UK, ensuring that policy and funding is informed by, and reflects, the needs of local economies across the whole of the UK.

As mentioned previously, innovation is about people and relationships and therefore thought should be given to appropriate levels of revenue funding to complement capital investment.

Pillar 2 – Developing skills

While Pillar 2 is a devolved issue we have the following comments:

- Graduates are critical to economic growth. For the UK, BIS estimated that ‘graduate skills accumulation contributed to roughly 20% of GDP growth in the UK from 1982–2005’.¹⁶
- In working to establish activities in Scotland through the Industrial Strategy, dialogue between the UK and Scottish Governments on devolved issues such as skills will be important. Industry will look to access packages of support that include both

¹⁵ Digital Science, Publication patterns in research underpinning impact in REF2014 (2016) http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/Independentresearch/2016/Publication,patterns,in,research,underpinning,impact,in,REF2014/2016_refimpact.pdf

¹⁶ Department for Business, Innovation and Skills, BIS Paper No 110: The relationship between graduates and economic growth across countries (2013) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229492/bis-13-858-relationship-between-graduates-and-economic-growth-across-countries.pdf

UK-level and devolved elements and dialogue should seek to ensure that those businesses are supported fully.

- Employer needs are diverse and change rapidly due to various economic and political influences and so identifying long term needs is very challenging. Changing the supply of graduates to meet this is also challenging and can only be done in response to long-term trends, not just due to the time required for study but for quality assurance of the courses and ensuring student demand for courses.
- This emphasises the need for a broad base of HE opportunities to ensure graduates have the attributes to learn new skills and be flexible in future careers. that will be pursued in a 'disruption economy'
- There are certain areas with known potential skills shortages, best solved through higher education. For example, the use of big data will underpin productivity growth across sectors¹⁷ and it is critical to take action to promote data science.
- Any new structures focussed on technical skills should be linked to both HE and FE to ensure opportunities to move between academic and technical routes, and to build on pre-existing collaborations across these providers.

Universities across the UK have a critical role in providing opportunities for lifelong learning, whether through upskilling or retraining. As the NCUB ¹⁸ has noted, HEIs have an important role in refreshing the talent pool, and it is important to ensure that individuals across the UK have the opportunity to access retraining or upskilling.

Pillar 3 – Upgrading infrastructure

There are significant opportunities for HEIs to contribute to work to upgrade infrastructure with significant academic expertise in Scotland, including future cities research (Glasgow City Authority won the UK-wide competition for the Future Cities Demonstrator project), experience in data driven innovation, robotics and national excellence in supporting innovation in the construction sector (e.g. Construction Scotland Innovation Centre). There is therefore a significant opportunity for the impacts of investments in Pillar 3 to be maximised through engagement with the academic base.

Pillar 4 – Supporting businesses to start and grow

Scottish HEIs undertake significant work – both individually and collaboratively – to support businesses to start and grow. There is an opportunity to share best practice with the wider UK sector as well as to build on our strong base.

Pillar 4 focusses on the role of LEPs in England, which do not exist in Scotland. This is an example of where structures differ and schemes need to be structured in such a way that all parts of the UK are able to contribute. Again, dialogue to ensure an ongoing understanding of these differences will be vital.

¹⁷ McKinsey, 'Big data: the next frontier for innovation, competition and productivity' (2001)
https://bigdatawg.nist.gov/pdf/MGI_big_data_full_report.pdf

¹⁸ NCUB, 'The Step Change: Business-University Collaboration Powering Scottish Innovation (2016)
<http://www.ncub.co.uk/reports/growing-value-scotland-final-report.html>

Supporting businesses to start

Scottish HEIs perform very well in terms of spin-out companies and provide significant support to graduate and staff entrepreneurs. It is unclear if Professor Dafforn's entrepreneurship review is UK-wide or England-only but there are a number of strong examples of entrepreneurial support in Scotland, and there is current work across the sector in Scotland, such as Enterprise Campus, to maximise the entrepreneurial opportunities for staff and students. There is good practice in Scotland that we would be pleased to share with this ongoing review.

HEIs should be engaged with the patient capital review as institutions with a particular interest in, and experience of, the issues around long-term investment in and support for early stage companies.

Scotland has put in place a strong infrastructure to support university start-up companies. Organisations such as Converge Challenge¹⁹ are delivering strong outcomes in terms of the stimulation and support of entrepreneurial activity.

Supporting businesses to grow

Alongside the major contribution to growth from universities' output in terms of talent and knowledge, Scottish HEIs undertake a range of specific activities to support business growth for example:

- Scottish HEIs work with Interface to reach businesses and to help businesses to grow through Innovation Vouchers, with impressive results demonstrated²⁰
- Scottish business schools are well represented in Small Business Charter award holders demonstrating their commitment to supporting SMEs
- A high proportion of our 18, 000 formal interactions with Scottish businesses each year is to provide consultancy and training services

Enhancing the role of HEIs in supporting business growth

There are areas where HEIs could further support business growth, for example:

- We support the recommendation of the McMillan Group that new work should be undertaken and funding streams created to further develop entrepreneurial ecosystems taking into account local factors and strengths
- We would welcome more work to understand how HEIs can better support growing businesses to access overseas markets by leveraging HEIs' global relationships
- As noted under pillar 1 there is a need to improve the demand side for working with HEIs, including business confidence and skills for growth. A means to achieve this is to incentivise businesses to access Scottish HEI, including business school, support and to invest in staff development (as discussed under pillar 2).

Pillar 6 – Encouraging trade and inward investment

¹⁹ <https://www.convergechallenge.com/blogs/news/2017-03-23-success-of-universities-entrepreneurship-programme/>

²⁰ Interface key statistics: <http://www.interface-online.org.uk/about-us/facts-and-figures> (February 2017)

In Scotland, research excellence is a key component of our attractiveness for Foreign Direct Investment²¹. It is important that Scottish and UK structures are promoting research strengths and supporting HEIs to make connections with R&D active companies.

Research relationships are a critical way of developing international relationships. Therefore ensuring HEIs are funded and enabled to develop international relationships through not only ODA-related funding streams (including the Newton Fund and Global Challenges Research Fund) but also more general economic development programmes.

As with regions of England, it will be important to have a nuanced understanding of the requirements across Scotland including the diverse needs of regions within Scotland, in order to link international trade and local growth.

Pillar 7- Delivering affordable energy and clean growth

There is a huge potential contribution from Scottish HEIs to this Pillar due to our research strengths. As noted within the green paper there are strengths in Aberdeen based on oil and gas, with the innovation focus of the Aberdeen City Region Deal leading to the creation of the Oil and Gas Technology Centre (along with the pan-Scotland Oil and Gas Innovation Centre) so there is a real opportunity to access expertise. There are several Scottish HEIs with world-leading energy research, including renewables, power networks and low carbon that could contribute to the aims of this Pillar.

We look forward to understanding how HEIs can engage with the programmes of research UK Government have committed to – including energy storage and smart technologies

Pillar 8 – Cultivating world-leading sectors

We welcome the ‘open door’ approach of UK Government to cultivating world leading sectors and see an important role for HEIs, working with industry and others, in contributing to the creation of such collaborations. We would welcome clarity on how stakeholders engage with this opportunity. For our own part, we are pursuing a creative discussion with sectors in Scotland and beyond to understand what more we can do to support their growth.

It is vital that Scottish HEIs can be involved in UK-wide work to create world-leading sectors. It would be to the detriment of the Scottish and UK economy if different structures for sector support, or indeed a lack of utilisation of Scottish structures, were a barrier to realising UK sector deals. To reach a critical mass of expertise at UK level Scottish HEIs, and businesses, must be supported to engage. There needs to be a clear understanding within BEIS of our different structures and therefore clear joins between the Scottish and UK-wide interventions.

To illustrate:

²¹ Ernest and Young. EY’s attractiveness survey: Scotland 2015: Scotland on the world stage, 2015

- FinTech, which the Industrial Strategy highlights, is an area of opportunity and is a particular focus of Scottish Government. We can see real benefits in linking our academic expertise and strong financial services sector within Scotland and the wider UK to deliver a sector deal. Integrating actions by UK Government and Scottish Government and its agencies will be an important foundation for success.
- Scotland also has a significant role to play in the review of industrial digitalisation carried out by Juergen Maier to consider how UK industry can benefit from the accelerated adoption of digital technology across advanced manufacturing. The National Manufacturing Institute for Scotland (NMIS) programme, linked to world class robotics expertise, means that Scotland can make a particularly strong contribution in this area.

UK and Scottish Government can have an important role in acting in a convening role to bring together businesses and HEIs, as well as to make this collaborative working a clear expectation of agencies charged with delivering economic development. A useful outcome of the Industrial Strategy should be to maximise the use of foresighting within HEIs to understand emerging areas of research and industrial application that may be right for support – as well as supporting existing sectors to articulate challenges to pursue through sector deals or other methods. HEIs within Scotland have a very broad range of research strengths, have a range of industry collaborations and can support sectors of the future. Government support for engagement between HEIs and various economic development agencies, representative/sector bodies and businesses would contribute to ensuring new and non-traditional sectors (particularly more distributed sectors such as services or tourism) could be identified and enabled to engage with the opportunities of the Industrial Strategy.

We welcome the ongoing work on creative industries led by Sir Peter Bazalgette. The creative industries contribute significantly to the Scottish economy generating a GVA of £3.06Bn and thrive on high level skills (with ~60% of jobs filled by people with a degree or equivalent)²². As well as social and cultural impacts there are significant opportunities such as maximising design-led innovation – with use of design having a strong positive correlation with national competitiveness²³. We would welcome a structured engagement between interested Scottish HEIs and Sir Peter to discuss this early work on a potential sector deal.

There are also sectors that have a stronger prominence within the Scottish economy than they do within the UK as a whole. To illustrate, food & drink/agriculture; Blue Economy (including aquaculture, coastal tourism, marine biotechnology, ocean energy and seabed mining – all areas where we see Scottish research expertise); One Health and low carbon are all key or key emerging sectors in Scotland which are arguably less prominent in an UK context. Many of these sectors have significant export potential and can facilitate international relationships such as the Commonwealth Secretariat's recent recommendations to support the Blue Economy²⁴.

²² <http://www.universities-scotland.ac.uk/wp-content/uploads/2016/07/HoC-Debate-on-Creative-Industries-7-Jul-16.pdf>

²³ Northern & Western Regional Assembly & The Circa Group Europe, Design-Driven Innovation: Why it Matters for SME Competitiveness (2015) [http://www.seeplatform.eu/docs/Design-Driven%20Innovation-Why%20it%20Matters%20for%20SME%20Competitiveness\(3\).pdf](http://www.seeplatform.eu/docs/Design-Driven%20Innovation-Why%20it%20Matters%20for%20SME%20Competitiveness(3).pdf)

It should also be noted that there is a need for some flexibility in the sectorial approach to prevent unnecessary duplication and ensure the flow of innovation between sectors – an area where quick wins can be gained in driving productivity. Universities often have ‘enabling innovations’ that cut across sectors and a purely sectorial approach. Thought should be given to how this could be harnessed – perhaps through Pioneering Innovation Centres that research and develop underpinning technology and share best practice from across the sectors.

Pillar 9 – Driving growth across the whole country

As noted, we strongly support the establishment of the Ministerial Forum to discuss how we can maximise productivity and economic growth in Scotland fully incorporating Scottish Government priorities and current activities (including the Economic Strategy and industry strategies).

Scotland has unique structures to drive productivity through access to HEI expertise including our eight industry-led Innovation Centres and City Deals (for example a focus on oil and gas in Aberdeen, and digital in Edinburgh) which could link into the Industrial Strategy and other UK-wide interventions (such as Catapults) to deliver growth in Scotland. Scottish Government and public agencies should collaborate to support these structures to drive local growth. We would invite the UK Government to consider the outputs of the Science and Innovation Audits to inform their work at a local level – and also to look to the methodologies and whether approaches can be shared to enable more local collaborations to map strengths and identify opportunities.

Scotland has enterprise agencies rather than LEPs. These are Highlands and Islands Enterprise, the soon to be established South of Scotland agency and Scottish Enterprise. UK mechanisms to drive growth which are premised on Mayoral Authorities, LEPs or indeed university enterprise zones will not work in this context and there must be appropriate adjustments. As will be the case elsewhere in the UK, the patterns of industries (and growth) vary across Scotland. A relatively ‘granular’ approach to ‘place’ will need to be taken even if this is in the context of collaborations across wider geographic regions.

The Industrial Strategy commits UK Government to consider the future of European Structural and Investment Funds and while Scotland is not disproportionately reliant on such funds this masks considerable regional variation, with a particular impact on the Highlands and Islands. It will therefore be important such consideration takes into account the specific needs of Scottish regions. We would also highlight that European funds have been used to support business engagement with HEIs in Scotland and there is a need to avoid losing this good work and to begin discussions about possible sources to replace this funding.

Selecting appropriate sectors for support will also help drive growth linked to place. An excellent examples of this is the Blue Economy which if developed could encompass the transformation of rural communities and ensure fully inclusive growth.

Pillar 10 – Creating the right institutions to bring together sectors and places

In many places universities have a unique ability to drive economic growth as they attract talent and investment as well as having international scale and connectedness. In this way universities can operate as anchor institutions because they are closely associated with, and rooted in, a particular geographic area. Universities have a wide role and commitment to maximising beneficial impact and so are important institutions that can act to bring together sectors and places. Universities Scotland represents the 19 HEIs in Scotland and is a good route into HEIs as a network. We note the commitment to bring networks of HEIs together to improve commercialisation and would be happy to discuss this further.

There are numerous interventions and current platforms in Scotland so we would caution against creating more institutions at the Scottish level but perhaps focus on maximising (or building) the linkages between what exists at the Scottish and UK levels.

Conclusion

Scottish HEIs are enthusiastic about the Industrial Strategy and look forward to playing a full part across all of the Pillars.

Partnership between the UK and Scottish Governments will be vital in maximising growth in Scotland.

We are pursuing a creative discussion with industry sectors in Scotland and beyond as to how we can contribute. The strategic focus on both excellence and place is welcome. In taking that forward actions will need to be tailored to the diversity of circumstances across the UK, for instance the diverse policy and structures for public support for economic development. The diversity in the industrial base, both in terms of sectors and in terms of the concentration of headquartered and R&D active organisations, will also need to be considered.

The Green Paper is a very exciting start in developing the Strategy and we look forward to further dialogue to realise the potential for Scotland and the wider UK.

About Universities Scotland

We are a membership organisation working for the Principals and Directors of Scotland's 19 higher education institutions. We develop higher education policy and campaign on issues where our members have a shared interest.

Contact

Ruth Meyer, Senior Policy Officer (Research and Innovation)

ruth@universities-scotland.ac.uk

0131 225 0705