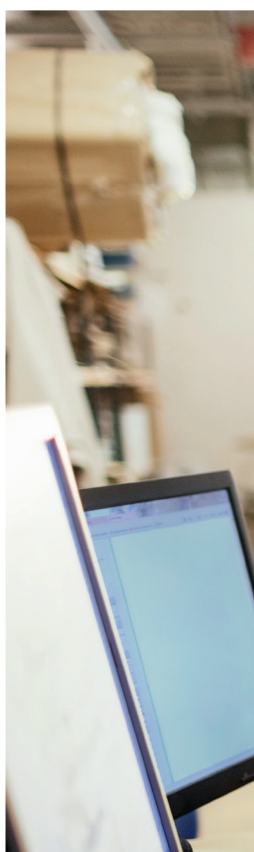




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ENTERPRISE AND SKILLS REVIEW: REPORT ON PHASE 2 INNOVATION



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Section 1: Introduction and background

Our vision is for Scotland to be a place where innovation is an intrinsic part of our culture, our society and our economy. Where businesses across the country are ambitious and open to collaborations and partnerships with one another, with colleges and universities and with other organisations within and beyond Scotland; are open to new ways of working and improving their work practices; and have high levels of innovation and growth as a result.

Innovation is a driver of productivity and growth. It encompasses the development and application of new processes, products, services, workforce configurations and business models. More innovative economies can respond better to changing economic circumstances and compete in international markets. We are therefore committed to spreading innovation more widely across the business base in all places and sectors, to building on recent improvements in our innovation performance, such as the increase in the percentage of innovation-active businesses in Scotland, and to reducing the gap in Gross Expenditure on Research and Development (GERD) between Scotland and the EU, with a specific focus on improving our Business Enterprise Research and Development (BERD) performance year on year.

Enterprise and Skills Review Phase 1 Report

The Enterprise and Skills Review Phase 1 Report tasked us with two actions to help improve innovation performance across Scotland:

“We will review, streamline and simplify the innovation support ecosystem, connecting programmes, funding and delivery mechanisms. We will ensure that more businesses in Scotland increase their level of innovation to realise their major growth ambitions by implementing an innovation action plan that will be published by the end of November.”

The Scotland CAN DO Innovation Action Planⁱ was publishedⁱⁱ in January of this year. This report builds on the Action Plan, setting out findings from the evidence we have gathered over the past few months and our recommendations not only for streamlining and simplifying innovation support, but also for boosting Scotland’s overall innovation performance.

Scotland Can Do Innovation Action Plan

The Action Plan sets out the steps we can take now to improve Scotland’s innovation performance. Its aim is to create a culture in Scotland that supports ambitious businesses to use innovation to grow, all underpinned by a clear, easy to navigate, well connected system of information, advice and support. It was developed with the support of the Scotland CAN DO Innovation Forum, and identifies three clear themes for action:

Ambition – Our long term ambition is to boost Scotland’s innovation performance to match the levels of the best performing countries in the OECD. We want Scotland to be a place where innovation is an intrinsic part of our culture, our society and our economy – where businesses across the country are ambitious and open to collaborations and partnerships with one another, with academia and with other organisations, and have high levels of innovation and growth as a result.

Culture – We must establish a culture of innovation across the board in Scotland; a culture that involves everyone, raises awareness and embeds innovation into everything from policy making to business development.

Connections – We need to make the best use of not only our own expertise but also look outward to establish links with the right partners across the world.

These themes are supported by specific actions grouped under four supporting key priorities:

Priority 1: Directly encourage more business innovation

Priority 2: Use public sector needs and spend to catalyse innovation

Priority 3: Support innovation across sectors and places

Priority 4: Make best use of university and college research, knowledge and talent to drive growth and equip Scotland’s people with the tools and skills needed to innovate.

The implementation of the Action Plan will be overseen by the CAN DO Innovation Forum with its role and remit refreshed to provide support and challenge on each priority and to consider key long term trends and issues related to innovation.

Innovation Ecosystem Review

Using the evidence we have gathered, the key purpose of this report is to set out our longer term strategic approach to innovation, including recommendations about how we will:

- Simplify the innovation landscape and align better our innovation approach to maximise the impact of public sector support for innovation.
- Ensure that we have the right range and mix of accessible innovation advice and products, tailored to the right customers and meeting their needs.
- Increase awareness of sources of innovation support and the benefits it can provide for businesses across Scotland. This should include access to academic expertise and facilities across Scotland, such as our universities, research institutes, innovation centres and colleges.

The report is therefore more focused than that of the Innovation Action Plan and does not seek to replicate it, nor represent all of the existing or planned activity. Nevertheless, where useful ideas have emerged that supplement that existing or planned Innovation Action Plan activity, those recommendations have been grouped here under the Priority Themes set out above.

The main challenge for the review was to examine if the organisation and delivery of innovation support in Scotland as effective as it could be in maximising business innovation performance.

The nature of innovation support and the way it is currently provided by the public sector to businesses in Scotland was raised as an issue in consultation responses to Phase 1 of the Enterprise and Skills Review. In particular, the innovation support landscape was perceived by some businesses as complex and difficult to navigate. This was borne out by research undertaken as part of this review where businesses reported that: “accessing [business] support is overly complicated.”ⁱⁱⁱ This finding is not unique to

Scotland: the OECD reports that streamlining access to innovation policy programmes has become a key issue for OECD countries in recent years.

However, what comes across clearly in the evidence gathered directly from Scottish businesses and stakeholders as well as in wider innovation policy research is that streamlining access to and delivery of innovation support is necessary but not sufficient to accelerate improvements in Scotland's innovation performance to the desired extent. This is because the core challenges in the innovation ecosystem cannot be addressed solely through the public sector supply of innovation support and associated products and services to Scottish businesses. Additional action, by the public and private sectors, focused on driving up levels of business demand for innovation should be taken in order to make improvements across a broad front, for example using public procurement to spur innovation or to build entrepreneurial spirit or creativity in the workplace. Section 4 provides more detail on this.

Section 2: Summary of Evidence

A key part of this review was to assemble and analyse a wide range of data on innovation in Scotland.

Evidence gathered includes:

- A data review of Scotland's current innovation performance.
- A literature review of existing reports on the Scottish innovation system.
- Focus group sessions with business, universities and colleges.
- Perspectives on innovation support.
- An audit of public sector innovation products.

The full outcomes of this work will be published separately.

Current Innovation Performance:

- Scotland's Gross Expenditure on Research and Development (GERD)^{iv} in 2015 was 1.46% of GDP compared to 1.95% for the EU as a whole. That gap remains the same size now as in 2006. Over the same period Scotland narrowed the gap with the UK from 0.36% to 0.22%.
- Scottish Higher Education Research and Development expenditure (HERD) is the 4th highest in the OECD (top quartile). Nevertheless, there are continuing concerns that industry does not fully exploit these academic strengths and assets.
- Scottish Business Expenditure on Research and Development (BERD) grew by 41% between 2007 and 2016, compared to just 17% for the UK as a whole. BERD employment is at its highest ever level, and, as reported by Ernst and Young in May, in 2016, "*Scotland attracted more R&D projects than any other UK region, with software and life sciences the main drivers*"^v. Nevertheless BERD remains just 0.6% GDP in Scotland, 9th amongst 12 UK regions. Countries comparable in size such as Finland and Sweden spend over three times as much on BERD.
- Scottish business innovation showed significant improvement between 2013 and 2015, with Scotland moving from third to first quartile of the EU28 in business innovation activity^{vi}. Scotland (and the UK) outperformed the EU average in organisational innovations, but performed less well than the EU average in process, product and marketing innovation. There is also a performance gap in terms of medium and large sized businesses in Scotland.
- In the UK Innovation Survey 2015^{vii}, businesses report that availability of finance, cost of innovation and economic risks of innovation were the most highly rated factors in terms of their importance in constraining innovation activities, but lack of qualified personnel and of required information also featured, as did uncertain demand for innovative products.

Innovation Literature Review

A key theme emerging from the literature review suggests that innovation activities in Scotland are constrained by a mismatch between areas of scientific strength and industrial capacity – Scotland's public research base is strong, but the industrial capacity or "absorptive capacity" to exploit specific outputs can be lacking and a key challenge will be how to address that mismatch. The review also suggests that other small

innovative countries with strong BERD performance invest in applied research and technology development and downstream innovation and argues for an emphasis on stimulating industry demand as the basis for the approach to innovation.

The review also suggests that financial issues as barriers to innovation can be understood at least in part as risk aversion and information deficiencies in which firms lack information in order to assess likely returns on investment. Thus, market opportunity information and public sector procurement practice give more certainty around potential customers and scale thereby stimulating potential suppliers to innovate by addressing that information deficiency and risk aversion.

Focus Groups

Six focus groups involving businesses, universities and colleges were undertaken and the gathered evidence generated a number of interesting observations on current challenges and suggestions for change. For example, strong messages emerged around the need for clear communication of the benefits of innovation, what support is on offer and how to access it, and on the strengths of Scotland as an innovation nation.

The proposed streamlining and simplification of the innovation support landscape was welcomed, but with a desire to retain flexibility within the system and ensure that the positive and effective elements of existing support were retained, including direction to appropriate regional and sectoral advice and support.

The significant number of innovation infrastructure investments underway in Scotland was welcomed though the need for a more strategic and coordinated approach to such investment, for example through City Deal proposals, the National Manufacturing Institute for Scotland and other national or regional demonstrators and Innovation Centres was noted. This will be a key issue for the Strategic Board and partners to consider.

A number of Scottish businesses reported insufficient in-house capability to undertake R&D or non-technological innovation. It was highlighted that colleges are well connected to the local business base, including SMEs, and are well placed to support business innovation in that group. They also reported a need for better alignment between innovation and the skills and technical development that needs to sit alongside them was suggested.

Perspectives on innovation support - Enterprise Agencies

Two pathways shape the experiences of users of innovation advice and support from the Enterprise Agencies:

- i. Experiences of Relationship Managed Innovators
- ii. Experiences of Innovation Learners or Intermittent Innovators

Relationship Managed Innovators have an existing account management connection with SE, HIE or Business Gateway. Innovation Learners are typically SMEs that have had limited or no engagement with innovation support services. Intermittent Innovators dip in and out of support services and do not generate sufficient turnover from innovation to transition to Relationship Management.

Businesses in each pathway have access to a core range of innovation support (R&D grants such as SMART, Regional Selective Assistance, Environmental Aid etc). Relationship management further coordinates, connects and offers access to “wrap-around” support for business growth strategies, including capital investment, R&D, business efficiency and leadership.

What is clear from the evidence^{viii} is that relationship management matters. It impacts positively on business performance, Gross Value Added (GVA) and employment. For example, recent analysis undertaken by SE shows that the average GVA impact for relationship managed firms in receipt of SE innovation support was £5.5 million per company compared to £1.7 million per company for intermittent innovators. Intermittent innovators are also more likely to report difficulties in accessing the right services.

The evidence also shows that Scotland’s innovation results are reliant on activities delivered by a relatively small number of large companies – to transform our innovation performance we need more companies in more sectors to innovate and for companies to bring forward larger, transformational projects.

Part of achieving this will be to increase interest in innovation from intermittent and learner innovators. As some of these companies find the roles of different organisations difficult to understand, this will require improvements to communication and coordination of support – better coordinated pathways to connect up local and national resources, a clear route to support businesses to scale up their innovations and a shared core message across Enterprise Agencies and others to reinforce a positive image of Scotland as a top location for innovation investment.

Perspectives on innovation support – Universities and Colleges

Business access to academic expertise is facilitated by individual university knowledge exchange offices, by Interface, and through our network of Innovation Centres across Scotland.

A 2013 evaluation of Interface^{ix} indicated it generated £17m of GVA for the Scottish economy and supported c.350 jobs. 97% of businesses engaging with Interface said that their projects would not have happened, would have taken longer, or would have been less valuable without its assistance. 98.5% of customers were satisfied/extremely satisfied with the level of support provided by Interface.

During the business focus groups, participants reported a mixed experience in dealing with universities and colleges. A key theme was the lack of time businesses have to find out what is going on in universities and colleges and it was suggested that the Enterprise Agencies may be able to perform a more helpful information sharing role.

The university focus group session generated a number of key themes, including the importance of stimulating business demand, the need to use the university experience to develop entrepreneurial graduates, and how collaboration and relationships are more important than process change.

With colleges, they reported that that whilst they are often at the sharp end of innovation, the focus is more often than not on interactions between business and universities. Colleges needed to be freed up and encouraged to work more closely with businesses on innovation.

Audit of public sector innovation products

The audit was undertaken on behalf of the review by HIE and looked at innovation support products on offer to business from SE, HIE, SFC and Innovate UK. SDS also provided information on products that they offer in support of innovative activities.

Across the four agencies, 74 products are currently on offer. Most of these products are delivered by a single partner with only one – “Make Innovation Happen” which is focussed specifically on the food and drink sector – delivered by “Team Scotland”. Most of the products are financial support (typically grants). Eligibility for products is generally determined by geography and business status – some are only available to account managed businesses and only around one third are available on a pan Scotland basis.

In terms of business size and sector, most products are offered to all sizes of business and very few of them are only available to businesses in specific growth sectors. We also looked at how the products spanned technology readiness levels (TRLs) and there is a reasonable spread across these. Most products were identified as supporting more than one TRL, however there is perhaps some concentration on levels 3-6 which cover proof of concept to demonstrating a prototype.

Further work needs to be done to analyse the impact of these products and also to consider how Scottish Government and Business Gateway offers add to the picture.

Section 3: Streamlining and simplifying the innovation support ecosystem

Innovation support is one element of the range of business support offered by our Enterprise and Skills Agencies, alongside local authority partners and Business Gateway. The support provided by the Enterprise Agencies is complemented by other support from our universities, colleges, innovation centres, research institutes and Interface who also play a role in facilitating and supporting business innovation activity

Phase 1 and 2 evidence suggested that some businesses find it daunting or difficult to navigate the innovation support landscape and arrive at the appropriate help. Our evidence gathering suggests that this tends to be businesses that have not yet sought innovation support or who use services infrequently. This suggests that adjustments need to be made to how businesses access innovation support.

In line with proposals for the broader business support system, the Enterprise and Skills Agencies, working with relevant partners, will re-design and simplify the route of entry and how support is offered, making it simpler and quicker for businesses to access the support they need. Businesses will be helped throughout their journey so that as they grow and develop they are able to access the right support easily, at the right times, from the right providers. This builds on work already underway across our agencies.

This direction of travel is also in line with international trends. The OECD has reported that for its members: “streamlining business support has become a key issue, aiming to make access to public support easier and encourage its broad diffusion”^x.

The approach outlined below will include the Enterprise and Skills Agencies in the first instance. We will work with key partners such as Interface, local authorities and Business Gateway to broaden the approach over time, maximising the benefit of this approach for our business base.

Simple, Streamlined Innovation Support Focussed on the User

Together, Scotland’s Enterprise and Skills Agencies will support companies through all stages of the business lifecycle so they can access the right innovation support at the right times from the right providers as they grow and develop. That support will be focussed on the business user, as we address perceived clutter by re-designing public sector support around the customer’s journey.

Principles

Building on existing provision, and in line with work undertaken for general business support, business users will experience a simpler customer journey that includes:

- **A single, easy-to-access, digital entry point:** based on customer need not product.
- **A single application:** fewer and ultimately only one request for the same basic information to cover multiple applications.
- **Blended engagement based on business needs:** A mix of face-to-face and digitally-enabled access to information, advice and support through engagement range of channels – including self-service, one-to-many, targeted intensive and expert support.
- **Simple Language:** a simpler common language and a consistent approach from the public sector that fully makes best use of digital support.

- **First and Lead contacts:** contact from the most appropriate first partner will be made within a specified time. This will be followed up with an early, assessment of needs to ensure support is tailored and provided by the right partner. For businesses with significant growth potential, a key contact within the most appropriate agency will be allocated backed by a more rounded team approach that strengthens that individual company's development and growth ambition.

Actions

To deliver this streamlined journey, we will:

Develop governance

- Develop a route map for changes to the innovation system.
- Establish a senior-level delivery group to oversee this on-going programme of streamlining support.
- Establish a cross-organisation digital improvement team.
- Set out a joint commitment from all public sector business support partners that makes clear the standards and levels of service businesses can expect.

Improve Awareness

- Pilot a 'Business Box' for companies – on registration, each business would receive an information pack with their business ID, including information on the types of support available, and the offer of follow up.
- Customise electronic communication to businesses in Scotland e.g. emails with embedded targeted content such as video, newsletters, case studies, to ensure businesses are aware of the benefits of innovation, know what support is available, including the availability of facilities and expertise provided by colleges and universities. This would be one component of the Communications Plan under development as part of the CAN DO Innovation Action Plan for Scotland.

Continue to develop our Knowledge

- Undertake further work on the audit of innovation support products to determine the cost effectiveness and impact of these interventions.
- Investigate the scope for a simplification of Scottish Government funding streams to support coherent delivery.
- Reinvest any savings arising from this in widening innovation across the business base.

Track Progress

- Develop measures to determine progress.
- Work with the Strategic Board to develop ambitious Scotland-wide targets on engagement with business to make more innovation happen.

Section 4: Building on the Innovation Action Plan

Following Phase 1, the aim of this report was to consider how the innovation system can be improved to deliver greater level of business innovation in Scotland. The streamlining activity set out above is important both to encourage more companies to invest in innovation and to reduce the time they spend navigating the system.

Nevertheless, system changes on their own will not deliver the significant improvements in Scotland’s innovation performance that we need. For this, we must focus on driving up levels of business engagement in innovation. We need to deepen levels of engagement of existing innovators and support significantly more businesses to invest in innovation. This is the key theme that has emerged from across the evidence and is the main aim of the Innovation action plan.

This section therefore builds on the innovation action plan and its four key priorities, providing supplementary, evidence based analysis and recommendations.

Innovation Action Plan Priority 1: Directly encourage more business innovation

Management Skills and Finance for Innovation

Scotland has a number of world leading companies at the cutting edge of innovation in their sectors. However recent analysis^{xi} has suggested that the UK and Scotland’s relatively poor productivity performance can be substantially attributed to a long tail of companies that are less likely to innovate, with slow productivity growth and which have not been able to keep pace with frontier companies^{xii}.

The role of innovation in boosting SME productivity growth is becoming better recognised^{xiii, xiv}. It has been suggested that a relative lack of management skills “is a plausible candidate explanation for the UK’s long tail of companies”^{xv}. The particular productivity challenges of some family businesses are also highlighted^{xvi, xvii, xviii}. Digital and management skills are also as a challenge for many Scottish businesses^{xix}. A relative lack of long-termism in some Scottish and UK^{xx, xxi, xxii, xxiii} businesses has further been suggested as a barrier to certain kinds of innovation and investment. A lack of skills in these areas is likely to play an important role in the ability of some Scottish businesses to adopt and make the most of innovations.

These issues, where they exist, require long term and consistent efforts across the public, private and academic sectors to encourage change. Competence in these areas is central to the capability of our businesses for innovation, and for our long-term economic performance. Furthermore, while the education level of managers and other workers is positively associated with quality of management within businesses, it has also been suggested that management quality can be improved through more basic business education on issues such as budgeting, data analysis and standard human resources practices^{xxiv}.

This suggests that as well as encouraging dynamic frontier companies, we must think carefully about how we can support small improvements across many companies in this “long tail”, including by reaching more businesses with simple innovation support and an affordable innovation journey.

Finance for Innovation

Businesses continue to highlight access to finance as a key barrier to innovation. The need for patient long-term capital, and access to capital particularly for start-ups and young innovative technology companies has also been highlighted. The Scottish Government want to address such gaps in the market, where financial support needs to be boosted.

To help address these issues we will:

- Undertake additional research on the interplay between management skills and innovation demand in Scottish businesses, including the specific challenges and needs of family businesses.
- Create better linkages between innovation support and skills development and training.
- Consider further the impact of in-work training and the role of our colleges and universities in driving improvement.
- Ensure the Flexible Workforce Development Fund plays an important role here through in-work training delivered through colleges.
- Task the analytical unit with exploring how innovative finance, including peer to peer lending, could be utilised by Government and agencies to efficiently increase investment in R&D, innovation, uptake of existing technology and management practices.
- Continue with the significant existing and planned activity in finance for innovation including delivery of the Scottish Growth Scheme to support businesses in accessing the finance and investment they need to help realise their growth ambitions.

Benchmark Scottish Business Innovation Performance

Raising awareness of productivity and innovation performance amongst businesses, encouraging action on addressing skills issues, and facilitating networks and collaboration amongst partners, cannot and should not be addressed by the public sector alone. We are interested in learning more from how businesses themselves, including through their representative organisations, address such issues in comparator countries.

In addition to addressing the core capabilities within businesses that allow subsequent innovation, it can be important for businesses to know how they perform relative to companies of similar size within their sector^{xxv}. A lack of information in that regard may suppress the motivation to innovate, because some businesses might over-estimate their level of performance^{xxvi}.

To address this we will:

- Work with Scottish business organisations to commission comparative research in this field, and engage with business organisations on the findings of that research and associated next steps.
- Ensure the dissemination to Scottish businesses of relevant innovation and productivity information covering Scotland, the UK, and comparator countries. This will include case studies on the adoption of innovative approaches in other countries^{xxvii}.
- Investigate and report on the scope to enhance connections and networking between private, public and third sector organisations as a way of driving innovation performance.

Continue to Support Workplace Innovation

Workplaces and employees are at the heart of innovation processes. The Scottish economy performs relatively poorly on labour productivity, and the under-utilisation of workers skills is a designed, how internal decisions are made, how workers are treated and engaged and the way jobs are designed matter to the bottom line and have important benefits for employers, for individuals and for society. Unlocking the innovative potential of employees depends on Fair Work and employers' ability to be innovative in how the workplace is designed.

Applying the principles of the Fair Work Framework is important for workplace innovation. The Framework defines Fair Work as work that offers effective voice, opportunity, security, fulfilment and respect. Security at work includes factors like having a secure contract, fair pay and pay transparency and plays an important role in behaviours and attitudes within workplaces. Where managers are able to make workers feel secure, this can increase their willingness to adapt and change and the chances of them going 'the extra mile' to innovate and add value to the business.

Likewise, workplace innovation around effective employee voice and engagement make workers more likely to engage with their employer and offer insights and ideas that can stimulate change and improvement. Organisational innovation is already supported in Scotland^{xxviii} and recent figures suggest stronger performance in this area than the rest of the UK^{xxix}.

Given the above we will:

- Ask the Fair Work Convention to identify how our agencies can further embed workplace innovation through enhancing support for adviser training and focusing on demonstrating the productivity benefits of workplace innovation.

Innovation Action Plan Priority 2: Use public sector needs and spend to catalyse innovation

Increased business innovation investment and demand will not be created solely by improving the innovation support system. Opportunities and incentives need to be made available and the public sector can take a lead in this. The OECD has noted that public procurement has become a major feature of the innovation agenda that will grow in prominence as more countries develop demand-side policy instruments^{xxx}. There is a distinction to be made between encouraging demand for innovation support services, for example through electronic communication with many businesses using the Digital ID, and encouraging demand for innovative products or services, for example through public procurement.

The Scotland CAN DO Innovation Action Plan sets out a range of activity in this area, including work with the Scottish Government's Procurement Directorate to ensure that procurement acts as a catalyst for business innovation. It also sets out Scottish Government plans for a coordinated programme of mission-oriented challenges including a Public Sector Innovation Challenge Fund, and expansion of the CivTech pilot, which is harnessing new technologies to drive innovation in the public sector.

To build on this we will:

- Double funding for CivTech to £1.2 million to scale up their activity to address public sector needs with business led innovation.

- Look across the Scottish Government to identify further opportunities in this area, starting with NHS Scotland. The health and social care delivery plan published in December 2016 seeks to position Scotland as an international leader in innovation in health and life sciences, speed up the adoption of innovation into practice in NHS Scotland and improve patient experiences and clinical outcomes. We will accelerate and deepen this collaboration, with a focus on data driven innovation in health and life sciences.

Innovation Action Plan Priority 3: Support innovation across sectors and places

In addition to the activity outlined in the Action Plan, which focuses on driving greater innovation in FinTech, manufacturing, digital and health care, there are a number of other areas for development which the evidence has highlighted.

Collaboration

When business collaborate on innovative projects of mutual interest, all parties can benefit greatly. Recent research from Scottish Enterprise shows that companies which have made use of their innovation support “display much more open characteristics than other surveys have identified, with large numbers collaborating with suppliers, customers and universities to deliver their innovation projects.”^{xxxi} Most of this collaboration (62-63%) is across supply chains.

Given this, there remains significant opportunity for Scottish companies to supply other businesses in Scotland that are currently securing supplies from elsewhere and with that comes increased opportunities for innovative collaboration.

We will therefore ensure that support for innovation is fully integrated with further work on the identification of such supply chain opportunities.

Regional Variations

There is also a regional dimension to our innovation challenge: different regions in Scotland display very different productivity performance, due to variations in economic structures, company profile and management practices.

The spatial distribution of innovative businesses and the capabilities that underpin innovation are important to our understanding of local economic development, and long term action in underperforming localities should be a key focus for the Strategic Board.

Industry Leadership Groups

The role of Industry Leadership Groups should be maximised to stimulate innovation and improve BERD and help capture the full benefits of the UK Industrial Strategy for Scotland, working here with our universities and colleges.

Manufacturing

To support the manufacturing commitments in the Innovation Action Plan, we will also continue preparatory work on the National Manufacturing Institute of Scotland (NMIS) to support translation of cutting edge manufacturing research to application at industrial scale, with appropriate engagement of the college and university sectors.

National Innovation Infrastructure

As noted earlier in the report, there is a requirement for a more strategic and coordinated approach to innovation infrastructure investment, for example through City Deal proposals. This will be a key issue for the Strategic Board and partners to consider.

Innovation Action Plan Priority 4 Make best use of university and college research, knowledge and talent to equip Scotland’s people to innovate

Colleges and universities can support business innovation in many ways. The innovation action plan highlights how we will work with them to deliver leadership and entrepreneurial skills training for emerging entrepreneurs, innovators and businesses and improve the signposting and mapping of academic facilities for businesses.

The Innovation Scotland Forum Action Plan, the Five Point Plan of Universities Scotland and the outcomes delivered through the Scottish Funding Council (SFC) University Innovation Fund will all be critical to securing the intended improved interface between businesses and universities, to help grow innovation-active companies, and maximise the impact of the innovation activity of our universities.

The Colleges Innovation Action Plan will be important for driving improvement at the college interface with business and engagement with the Innovation Centre Programme.

Encouraging demand-led research

As noted earlier, it is important that we continue to support demand-led research and increase the conversion of academic research into business growth. The *OECD Science, Technology and Innovation Outlook 2016*^{xxxiii} notes that:

“Globally, Science, Innovation and Technology (STI) policies have slightly changed focus, form and target in recent years. A growing share of public spending for R&D has been allocated to the business sector, instead of the public research system, signalling a shift in strategic objectives (to increasing business capacity to innovate), instruments and targets.”

Whilst Scotland already does well in regard to the creation of spin-off companies – Scottish universities saw an increase of 16.7% in 2015-16 (relative to 2014-15) compared to a fall of 5.7% in the UK – there is an opportunity to work collaboratively with our universities to maximise the economic impact of these companies and our broader research investment.

We will:

- Pilot a £500k College Innovation Fund to support Scotland’s colleges to work with businesses on innovation activity.
- Work with the SFC and our Enterprise Agencies to explore how Scotland’s Innovation Centres might improve their engagement with businesses and drive increasing levels of collaboration between business and universities and colleges.
- Work in partnership with SFC and the Enterprise Agencies to develop a sustainable funding model for the Innovation Centre Programme as recommended by the Reid Review.

Section 5: Conclusion and Tracking Our Progress

The activities set out in the innovation action plan coupled with the additional recommendations in this paper aim to provide a framework for improvement in Scotland's innovation performance.

It is important that we track progress towards this improvement and we will work with the Strategic Board to establish appropriate stretching targets around, for example, the following potential indicators:

Key Indicator	Improvement in...
Innovation spend	<ul style="list-style-type: none"> • GERD as a % of GDP
Business Innovation Spend	<ul style="list-style-type: none"> • BERD as a % of GDP • BERD spend with < 400 employees
Business Innovation Activity	<ul style="list-style-type: none"> • Share of innovation active businesses • Share of innovation active businesses deriving > 10% increase in turnover • Share of innovative businesses collaborating
Business Innovation Employment	<ul style="list-style-type: none"> • BERD FTE jobs share of total employment
Business and HE/FE collaboration	<ul style="list-style-type: none"> • Share of innovative businesses collaborating with HE • HERD as a % of GDP

We will also propose that we benchmark our progress against OECD quartiles or averages.

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Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-78851-019-6 (web only)

Published by The Scottish Government, June 2017

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS265199 (06/17)

W W W . G O V . S C O T