



*The Royal Society
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Ms Fiona Hyslop
Cabinet Secretary for Economy, Fair Work and Culture
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Response to the Muscatelli Report

Dear Cabinet Secretary,

Firstly, on behalf of the Royal Society of Edinburgh, I would like to congratulate you on your appointment to Cabinet Secretary for Economy, Fair Work and Culture; we look forward to developing a strong and constructive relationship with you over the last year in this parliamentary term.

The RSE welcomed the review of the economic impact of Scottish universities by Sir Anton Muscatelli and was pleased to submit a response to the consultation¹. Our response acknowledged the economic and social importance of universities in Scotland but also highlighted several areas for improvement including around business engagement and in generating high quality and sustainable spinouts.

The RSE has made a longstanding contribution to supporting Scotland's economy, from our joint work with Scottish Enterprise in 1996 on commercialising research and enhancing the economic impact of Scotland's universities², to more recent activity on the supply of growth capital³ and the role of entrepreneurial education⁴ as well as delivery of our successful enterprise fellowship scheme. It was a privilege to host the launch of the Muscatelli report in November. Having considered the report, the RSE's Economy and Enterprise Committee (EEC) – which draws its membership from across Scotland's business and academic communities – thought it would be useful to write to you setting out our observations and suggestions for next steps:

1. The Muscatelli report provides an overview of many key parts of Scotland's higher education landscape and highlights several areas of competitive advantage. The report states that it does not cover the provision of skills by the sector in any detail as the Enterprise and Skills Agencies and Strategic Board is currently considering this area. Nonetheless it will be important to make the necessary connections between the two pieces of work as well as the recently published Cumberford-Little report to ensure the economic contribution of the tertiary system is maximised.
2. We welcome the recommendations for a more regional approach from universities, government and its agencies, and agree that this fits well with the City Region Deal initiatives

¹ Royal Society of Edinburgh, Response to the Muscatelli Review of the Impact of Scotland's Universities
<https://www.rse.org.uk/wp-content/uploads/2019/08/AP19-09.pdf>

² Royal Society of Edinburgh & Scottish Enterprise, (1996). 'Commercialisation Enquiry'.

³ Royal Society of Edinburgh, Scottish Financial Enterprise, ICAS (2014). 'The Supply of Growth Capital for Emerging High-Potential Companies in Scotland'.

⁴ Royal Society of Edinburgh, (2015). 'Entrepreneurial Education in Scotland'.

and the place agenda. Realising this ambition will rely on strong collaboration across all sectors in local economies. Developing efficient regional collaboration could also lead to improvements in the level of funding leveraged by Scottish consortia through Innovate UK and initiatives such as the Industrial Strategy Challenge Fund.

3. The report usefully draws together what is known about the contribution that universities make to the Scottish economy and the opportunities for enhancing this. We believe that an action plan is required in order to prioritise the recommendations and to help translate them into practical reality. As part of this it will be important to gain an understanding of how progress against the recommendations is to be tracked and evaluated.
4. The report and its recommendations focus predominantly on what government, its agencies and universities can and should do, with less recognition given to the role of business and the third sector. We note that compared to the input from universities and government agencies, business representation among the list of stakeholders consulted is relatively low. It is therefore crucially important that business in Scotland, including our SME base, is fully engaged in taking forward the report's recommendations. We welcome the joint response by SCDI and Universities Scotland which sets out a shared vision for closer partnership working among universities, businesses and the third sector to drive inclusive economic growth⁵.

We provide further comment below on key aspects of the Muscatelli report with a view to supporting delivery of its recommendations.

Universities and business engagement

The review appears to have had less direct engagement with businesses compared to the university sector. While this is understandable, the relationship between universities and business is critical to harnessing the economic impact of university research and skills development, and to improving the alignment between Scotland's performance in Higher Education Expenditure on Research and Development (HERD) and Business Enterprise Research and Development (BERD). Collaboration and cooperation with businesses is a two-way street. Universities should engage proactively with industry rather than waiting for businesses to approach them, particularly given the dominance of SMEs in Scotland. There also needs to be improved mutual understanding of the time, cost and complexity associated with taking an invention/discovery from the lab to the market. While we know there are good examples of where universities have actively sought out industry partners (see appendix), this approach needs to be more firmly embedded in university culture and practice. Funding schemes which encourage business and academic collaboration should continue to be promoted to Scottish businesses by the Scottish and UK Governments

There is also an opportunity for universities to collaborate more openly to reach a consensus of what constitutes standard, and best, practice with regard to business engagement, particularly on sensitive issues such as equity shares and licensing terms for IP in new company spinouts. There is evidence that if institutions insist on unrealistic terms it then almost inevitably makes it difficult for spinouts to obtain capital to expand rapidly.

Scottish and UK Government relationship and collaboration

The report recognises that some of the policy levers for promoting innovation and driving productivity are not currently devolved. It encourages universities to continue to support Scottish Government calls for the devolution of immigration powers to Scotland as well as encouraging the Scottish Government to explore with UK Government the scope for greater flexibility for the introduction of R&D tax incentives. Notwithstanding the possibility of further devolution of powers to Scotland, it is important that Scottish Government, universities and businesses work together to maximise the level of financial support that they can leverage from UK sources, including the Industrial Strategy Challenge Fund and Innovate UK. This is likely to become increasingly important in the context of Brexit. In connection to this, the RSE has stressed the importance of

⁵ SCDI & Universities Scotland, (2020). 'Partnership Statement', URL: <https://www.scdi.org.uk/news-item/scdi-us-partforgrowth/>

ensuring Scottish and devolved administration representation in UK Research and Innovation (UKRI) structures and governance arrangements. These points also emphasise the importance of ensuring constructive working relations between the Scottish and UK Governments in support of economic growth across all parts of the UK.

Review of the current commercialisation landscape

The report provides a 'light touch' overview of the research and innovation landscape in Scotland, recognising the need for a closer working relationship between universities and business the report possibly lacks detail on how this might be best achieved and what is currently best practice. The report acknowledges that exploration of all aspects of the wider system is beyond the scope of the review but is hugely important to in maximising the economic impact of Scotland's research and innovation activities. Therefore, in order to generate a better understanding of the effectiveness of current innovation and business development support in Scotland, we recommend that the Scottish Government undertake a comprehensive review of the existing commercialisation landscape, and the work of the institutions, organisations, programmes and initiatives that are already active in this space. As well as providing robust analysis, such a review would provide information to support decision making, including helping to determine whether existing support should be modified and/or streamlined, and the ways in which this should be done.

The review would be able to draw upon various evaluations of current initiatives including the independent evaluation of the RSE Enterprise Fellowship scheme. For more than twenty years our programme has supported entrepreneurial researchers and innovators to grow their ideas into promising businesses. The independent evaluation found that the Enterprise Fellowship scheme has made a significant economic impact. For every £1 invested the programme is estimated to have generated generating £10 for the UK economy and £6 for the Scottish economy. Despite the tech-led nature of these young businesses, 81% were still operating after five years which is almost double the national average for equivalent companies (45%).⁶

Creating a new Patent Fund and support mechanisms

The report highlights the performance of Scottish institutions in patenting new ideas and developing technology, this performance is stable generating £8M in income from intellectual property (IP) in 2017/18, this is only 4% of the UK total. IP reform is considered as a method to promote innovation, however as the report states IP law is not devolved to the Scottish Parliament. Therefore, the Scottish Government and HEI's should be encouraged to explore alternative options which could promote innovation from IP. One mechanism that could be developed within the current devolution settlement is the creation of a fund that would be solely used for patents, which would help to protect new innovations created in Scotland. While this fund would predominantly be used by universities, it could also be used to support businesses around their IP strategy. A recent report linking productivity with innovation shows Scotland lagging behind the highest performing English regions, although Edinburgh and Aberdeen are highlighted as high-performing "hot-spots" that buck this trend.⁷ Since 2015 these two cities have filed more patents per working-age adult than any other major city in the UK. The filing of patents is a key regional driver of success, translating into innovation, productivity, highly paid jobs and asset creation.

Development of a Scottish Innovation Fund

The report highlights the importance of developing a pipeline of funding to provide seed-capital for spinouts but also longer-term capital to help spinouts scale up, thus ensuring Scotland can take advantage of its active research base. It is hoped that more risk capital will be available in Scotland

⁶ Biggar Economics, (2019). 'Royal Society of Edinburgh Enterprise Fellowships – Evaluation and Economic Impact Assessment'. <http://www.rse.org.uk/wp-content/uploads/2019/10/RSE-Enterprise-Fellowship-Final-Report-13.8.19.pdf>

⁷ Centre for Economics and Business Research and Virgin Money, (2020). 'The SME Entrepreneurship and Innovation Report' <https://www.virginmoneyukplc.com/newsroom/news-and-releases/2020/boost-the-economy>

with the creation of the Scottish National Investment Bank and organisations such as the British Business Bank expanding their operations into Scotland. The RSE see this as a key moment to be bold and follow the successes of regional centres such as Oxford, Manchester, London and Cambridge and establish a significant venture fund *in and for* Scotland. The RSE has started to develop a proposal for a Scottish Innovation Fund that would provide significant financial investment to scale-up and grow innovative companies in Scotland. We plan to meet with universities and investors to explore this further. We should be pleased to update you on our plans in this area.

We hope that our reflections are helpful. We would welcome an opportunity to meet with you, Sir Anton and Nora Senior to discuss our comments in more detail and how the RSE can continue to work with the Scottish Government and other partners to support a flourishing inclusive economy.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Andy Porter', enclosed in a thin black rectangular border.

Professor Andy Porter FRSE, Vice President for Business and Chair of the Economy and Enterprise Committee.

CC'd

Professor Sir Anton Muscatelli FRSE, Chair of the Review into the Economic Impact of Scotland's Universities

Mr Alistair Sim, Director, Universities Scotland

Ms Nora Senior, Chair, Enterprise and Skills Strategic Board

Appendix

Examples of Good Practice

M Squared Lasers

Established in 2005 by Dr Graham Malcom and Dr Gareth Maker, who had previously founded Microlase in 1992 (a spinout from the University of Strathclyde). The company is headquartered in Glasgow and has a subsidiary based in California. M Squared Lasers works proactively with the University of Strathclyde to commercialise new quantum research and technologies. This successful partnership between academia and industry has resulted in the development of the Quantum Centre in the Glasgow Innovation District and the securing of investment worth £4.6M.

Novosound

The first spinout to emerge from the University of the West of Scotland, pre-spinout funding was provided by the Scottish Enterprise High Growth Spinout Programme; importantly this illustrates the progress in which 'newer universities' are making in commercialisation. The company has a strong partnership with Cascade Technologies (a spinout from the University of Strathclyde) which has achieved reasonable success to date. Initial financing was obtained in less than six weeks and it has since raised a further £5m in less than two years. The spinout now employs twenty people, and this is expected to grow further.

Odx Innovations

Established originally at the University of St. Andrews in 2019, it now has moved to the Inverness campus of the University of Highlands and Islands (UHI). Similar to Novosound, Odx Innovations has also benefited from the High Growth Spinout Programme as it received two pre spinout grants. The early success of the company has been attributed to the strong level of support from and engagement with UHI and the Highlands and Islands Enterprise; as well as the notable business experience of the CEO, Giles Hamilton. This has helped the company secure significant investment commitment with the company expected to double its headcount in the next year.

Current Health

Established at the University of Dundee in 2014, the company has commercialised research to develop a medical device which monitors patients in real time. This has achieved notable success and has just raised £9M to assist expansion in America, with offices now established in San Francisco. The company now employs around 30 people, and this is likely to increase after further investment.

pureLiFi

Established at the University of Edinburgh in 2012, the company uses disruptive technology using the light spectrum rather than the radio spectrum to connect to mobile devices. The company has engaged significantly with Wolfson Microelectronics before it was taken over in 2014 by Cirrus Logic. Initial funding was sourced from angel syndicates but has now raised £16M with the lead investor being [Temasek](#) of Singapore.

Roslin Technologies

Established in 2016 through a joint venture with the University of Edinburgh, Roslin Technologies specifically works on innovations in animal science. This received significant initial funding of around £10m and has since benefited from strong leadership from academia and strong partnerships with investment and business development firms which boast a notable global network and reach.