



Universities Scotland Briefing: Scottish Government Debate: How Scotland's Innovation Centre Programme is Driving Innovation in Scotland

We support the vision for the Innovation Centres

Universities Scotland supports the Scottish Funding Council's vision for the Innovation Centres:

Using the Scottish university infrastructure, human resources and research excellence as a platform for collaborations across the whole of Scotland, Innovation Centres will create sustainable and internationally ambitious open communities of university staff, research institutes, businesses and others to deliver economic growth and wider benefits for Scotland.

Key messages

- The eight Innovation Centres bring together industry and universities to address the innovation needs of companies and not-for-profits in eight different sectors.
- The Innovation Centre model is industry-led with industry representation in the majority on the boards although they are hosted within universities.
- The eight innovation centres focus on a variety of sectors including construction, digital health and care, industrial biotechnology, aquaculture, oil and gas, stratified medicine, imaging and sensors and the use of big data.
- Innovation Centres also support skills and training which contribute to develop the next generation of business-literate researchers and industry leaders through masters and post-doctoral level provision.
- A long-term approach to Innovation Centres is required. Ensuring that long-term investment is in place gives the business community the confidence it needs to encourage business investment.
- The mid-point independent review, led by Professor Graeme Reid, said "the evidence shows that the Innovation Centres programme is on the right track"¹ with high levels of satisfaction with their events and advice and 90% of companies reporting impacts that met or are projected to meet expectations over the next 1-3 years.
- The findings of the mid-point review are welcome. The review pointed to the need for better connectivity in the innovation system, a recommendation that will be addressed. Other developments in Scotland's innovation landscape, including the phase one recommendations from the Enterprise and Skills review, have the potential to complement this objective.
- The innovation centres have international reach and potential for increased exports. Last month the Scottish Aquaculture Innovation Centre (SAIC) signed a Letter of Intent with New Zealand's

¹ [Business Engagement and Economic Impact Evaluation of the Innovation Centres Programme](#)

largest independent science organisation, the Cawthorn Institute to explore research projects of mutual interest, which will connect aquaculture experts from Scotland and New Zealand. This builds on a similar arrangement signed with Nofima, the leading European institute for applied research into aquaculture, fisheries and food, earlier in the year.

Testimonials from business

Douglas McGarrie, **CTO IBM Scotland**: “It is fantastic to see how CENSIS is succeeding in gaining mindshare in Scotland. Your ventures into IOT are an exciting area of collaboration and I look forward to this continuing and building on the relationships that we’ve developed with the CENSIS team to date.”

Donald N Baker, **Founder & CIO, Brainn Wave Technologies Limited**: “One thing I can say is your support to us has been phenomenal. You’ve championed us to the Scottish business community. You’ve facilitated our meeting with local energy professionals. You’ve funded part of our research. I could go on. You’ve simply been amazing.”

Alex Stobart, **Mydex**: “As a Scottish Community Interest Company, the DHI experience has also empowered us in relationships with other organisations, SMEs, the third sector, academics and serving citizens of Scotland. Mydex is looking forward to continuing to work with the DHI to move person centred services, prevention and early intervention into the heart of our personal data ecosystem and improving outcomes for the citizens of Scotland.”

Further case studies are available in annex A.

Innovation Centres have made a promising start and implementation of the Reid Review recommendations will support the Centres to reach new heights

We welcomed Professor Reid’s independent review of the Innovation Centres and noted that this should be done in the spirit of continuous improvement as Innovation Centres are at varied stages of development and cover a diverse range of sectors. There is a need to consider both university push and industry pull in the performance of the Innovation Centres and the need to stimulate industry demand.

While it is too early to examine economic impact in the life-span of the Innovation Centres we would highlight the promising direction of travel:

- The recent independent analysis of the Innovation Centres demonstrated **evidence of benefits and impacts for participating companies**, with clear potential for future impacts (percentages shown below relate to businesses involved in the survey)
- Of fairly or well advanced Innovation Centre projects **90% of companies reported impacts achieved** to data or predicted over the next 1-3 years.
- There was **consistent high satisfaction with Innovation Centre activities** (including events and advice)
- Approximately two-thirds of businesses have reported that a project has led to or is likely to lead to follow on project activity indicating that Innovation Centres ‘are on the right path’

- As Innovation Centres seek to build open communities it is promising to see strong knowledge and networking benefits reported by companies involved in moving towards generating long-lasting relationships ²

The skills development work through Innovation Centres has been valuable. From Universities Scotland engagement with industry (and the recent NCUB report³) the value of graduates to innovation cannot be overemphasised. Studentships and Masters' courses crystallise relationships with business, as well as drive innovation.

Innovation Centres require a long-term approach

We see the Innovation Centres as a long-term commitment (requiring long-term investment) to deliver outcomes. Evidence shows that a long-term public investment in research facilitates business investment⁴ so similarly a long term view of the Innovation Centres will develop business confidence in working with the Centres and developing strategic relationships.

We have identified the need for better connectivity in the innovation system and the scope for improving integration of Innovation Centres with the landscape including supporting businesses to leverage more opportunities, closer to market, such as enterprise agency funding.

We welcome the outcomes of the Reid Review and look forward to working with partners to deliver the recommendations.

Universities are highly committed to beneficial impact, including economic impact, and working hard to maximise this

Scottish universities undertake world-leading research, which is critical to the innovation system. As the Research Excellence Framework demonstrates, Scottish HEIs also perform more highly than the UK average when the impact of research is considered, with 86% of research judged to have had 'outstanding' or 'very considerable' impact.

There is a concerted effort through the Universities Scotland 5-Point Plan for Innovation and the Innovation Scotland Forum action plan to further enhance HEIs economic impact. The key goal of the 5-Point Plan for Innovation was to streamline business access to university innovation. Innovation Centres can play a role in improving the academic-business interface by complementing the significant efforts within HEIs to embed a culture of impact including embedding enterprise and entrepreneurial skills in staff and [students](#) as well as supporting staff to undertake knowledge exchange (including with [businesses](#)).

Actions undertaken have made it easier for business and other organisations to innovate with higher education institutions include:

- Standard contracts for Interface's Standard Innovation Voucher
- The Specialist Facilities Platform collecting together information on HEI facilities available for commercial use

² [Business Engagement and Economic Impact Evaluation of the Innovation Centres Programme](#)

³ <http://www.ncub.co.uk/reports/growing-value-scotland-final-report.html>

⁴ [Leverage from public funding of science and research](#) (BIS, 2013)

- Developed a post project referral protocol to support the seamless referral of businesses to the next appropriate part of the innovation ecosystem
- Established the Innovation Centre Admin Hub Group to share best practice. This Group reports into the Research & Commercialisation Directors Group to facilitate co-ordination of HEI engagement with Innovation Centres
- Met with six Industry Leadership Groups to discuss sectoral needs, strengthen our sector engagement and to inform future activities

ENDS

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Annex A: Case studies

We have highlighted three different case studies from a vast selection⁵ which we feel demonstrates the range of expertise across within Innovation Centres.

The case studies show Innovation Centres address a well-defined sector (Scottish Shellfish), addressing emerging sectors (Amicus, a digital start-up) and address a multi-industry sector (Glycomar, a biotechnology company).

Scottish Shellfish Internship

SAIC	
Business partner(s)	Scottish Shellfish
HEI partner(s)	University of Stirling
Total cost	£9,461
Project lifetime	13 weeks, May 2016 – August 2016

Background

Scottish Shellfish are a farmer cooperative concerned with the growing and packing of live and added value mussels. The business sought to optimise the quality of their product by refining the logistics process of moving the product from farm to retailer.

It was originally envisaged to be a student project in the SAIC funded MSc programme, however, none of the students in the current SAIC Scholars cohort chose the project. Once it was clear that the project was not going ahead, and the appetite from the commercial partner to progress this work without delay was strong, SAIC contacted the University of Stirling to see if the project could be progressed in other ways. SAIC agreed to fund an internship for the project and SAIC identified an ideal, highly motivated candidate, who had experience of working with local shellfish growers and retailers within the Oban area.

The intern, Dan Mulqueen, found out about the project through his contacts with SAIC and was offered the opportunity to undertake this commercially focused, MSc project level study this year, based on the good impression he had made with SAIC during his Life Sciences CV competition ScotGrad internship with the team in 2015.

The Project

The project focused on the transport of live mussels from the mussel processing factory to the retailer.

Scottish Shellfish had carried out an initial pilot trial to test the hypothesis that storing and transporting the mussels in an iced environment would reduce mortality at the end of shelf life.

⁵ [Business Engagement and Economic Impact Evaluation of the Innovation Centres Programme](#)

This trial had highlighted that there was a reduction in mortality, however this lacked scientific rigour, and the academic-supervised project therefore aimed to robustly assess the effectiveness of different packaging techniques using scientific methods.

The project also required discussion and agreement with Scottish Shellfish's customers in the major retailers.

The main focus has been on the usage of an ice and polystyrene package environment, which has had initial positive results in terms of both weight loss and survivability, with a potential reduction in mortality from 10% to 1%.

Benefits and Impacts

The project has provided a number of benefits for Scottish Shellfish, the intern, the retailer and final consumers. The main outcome of the project will be optimised quality for key stakeholders in the supply chain. In the future this could lead to better efficiency in the processing factory, and better yields for Scottish Shellfish and the mussel farmer. There is also potential, in the long term, for this to lead to increased retail sales.

For the business it has allowed the academically robust trial to continue as a stand-alone project and be conducted separately from the day to day operational practices. A clear outcome of the project is that Scottish Shellfish will have validated, robust data in the form of a report that can be shared with key stakeholders in the process e.g. retailers. In the absence of SAIC support, this internship would not have gone ahead, and the project would have been delayed until the following year's MSc programme.

Amiquis

The Data Lab	
Business partner(s)	Amiquis Resolution Ltd
HEI partner(s)	University of Strathclyde
Total cost	£33,856
Project lifetime	Q2 2015/16 – Q3 2015/6

Background

Amiquis is a digital start-up that aims to utilise open data to automate the process of resolving commercial disputes, and to make legal assistance more accessible for SMEs.

The software being developed will have a user based search feature, which will function by 'text mining' through an extensive database of case law and legal data to predict the outcome of a dispute if it was taken to court. This 'disruptive' process will allow all sides to make an informed decision on the best route forward, in view of avoiding a lengthy and costly court case.

Founder Callum Murray approached The Data Lab for support on the recommendation of the Scottish Edge Fund, with this being his first collaborative research project with a Scottish HEI.

Through The Data Lab, Amiquus have pursued a project with the University of Strathclyde. This was felt to be a good fit due to Callum’s prior knowledge of the university’s law school, and its computer science expertise. The project involves input from both departments.

Project

Research has focused on two core components. One aspect has involved understanding where legal data currently sits and agreeing access to it, with input from the University law school. The other aspect has focused on data science, particularly language processing and complex search processes known as deep learning. This is to ensure that the programme’s search algorithms bring up the most relevant legislation and case histories and that it provides an accurate prediction for users.

Benefits

The current project is now on track to deliver its objectives, with an early working prototype in development. Callum believes what they have managed to achieve to date with the funding will prove crucial to the future development of Amiquus:

“Now we can prove outcomes, it’s much easier to access finance – these small pockets of funding are very important as you can do a lot with them and it leads on to much more once your credibility is established.”

Within three years, predicted annual turnover from the software under development is £3.7m, with employment reaching 20 FTEs.

Amiquus have experienced a range of benefits from their engagement with The Data Lab, on top of the technical expertise it has allowed them to access. Of particular note has been networking opportunities, including introductions to foreign government officials who expressed an interest in the project, and access to court statisticians in the UK.

Optimising the Production of a Biologically Active Microalgal Polysaccharide

IBioIC	
Business partner(s)	Glycomar Ltd (with Micro A A/S)
HEI partner(s)	SAMS, University of Strathclyde, Edinburgh Complex Fluid Partnership
Total cost	£218,134
Project lifetime	2015/16 Q1 – 2015/16 Q4

Background

Polysaccharide is a novel chemical produced by a microalgae, a marine micro-organism. The chemical has a wide range of potential uses and is being developed for application in wound care and cosmetics.

The main industry partner for the project was Glycomar Ltd, a biotechnology company based at the European Centre for Marine Biotechnology near Oban. A number of academic partners were

involved in the project, from the nearby Scottish Association for Marine Science (SAMS), University of Strathclyde, and the Edinburgh Complex Fluids Partnership, based at the University of Edinburgh. Glycomar had previous experience of working with HEIs in Scotland, including a number of the academics involved with the project.

Project

The project aimed to identify a strain of microalgae with the optimum yield of polysaccharides and to assess its viability for commercial use. In doing so, the project partners hoped to develop the UK's first example of a new, high value product from marine biotechnology, using microalgae for sustainable IB production.

A number of different strains of *Prasinococcus capsulatus* – a type of algae – were tested, with one particular strain identified as the optimum for industrial production.

Benefits

Overall, the project has furthered understanding of polysaccharide production and brought it closer to industrial cultivation. The project met Glycomar's expectations at the outset, with most of the technical objectives achieved.

The success of their continued collaborative activity has seen Glycomar and a partner form a new joint venture, Prasinotech.

Glycomar estimate this will achieve new turnover of £250,000 and employment of four FTEs within three years. Prasinotech will implement the manufacture of high value polysaccharide products from microalgae, and is the first company in the world to specialise in this field. The company's first products are Prasinoguard and Prasinops, active ingredients for use in cosmetic skincare, such as anti-inflammatory products.

Glycomar has had some wider involvement with IBioIC, including a seat on its Commercial Advisory Board, and have attended various events and conferences. The networking opportunities it has provided have been of particular value.