



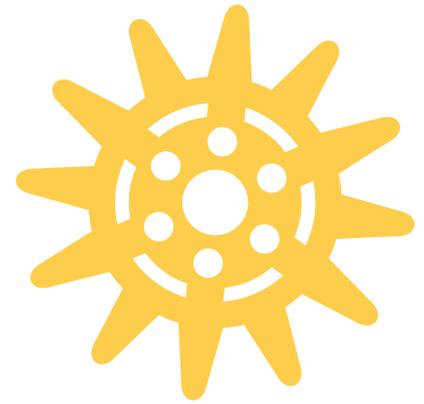
# Entrepreneurial Education in Scotland

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A Royal Society of Edinburgh discussion paper

Advice Paper 15-09 June 2015

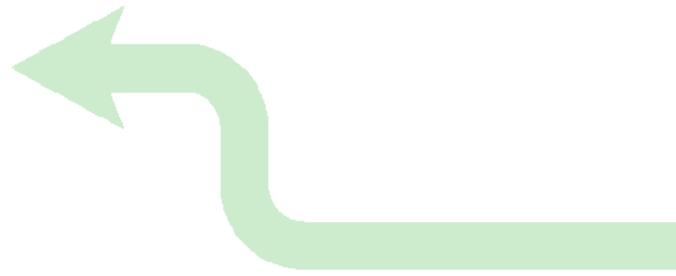
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# Foreword



The Scottish Government has set out an ambitious vision for Scotland to become a ‘world-leading entrepreneurial and innovative nation’. Such ambition is to be welcomed; indeed, it is necessary as Scotland – like many of its global neighbours – continues to steer its way out of turbulent times. Scotland’s economy must be driven by a skilled, ambitious and creative workforce if it is to achieve truly sustainable growth and be able to rise to societal challenges on the horizon.

But much must be done to close the current gap between Scotland’s ambition and its reality. The rate of new business creation in Scotland has increased in recent years, but it continues to lag behind that of the UK, and even further behind the entrepreneurial front-runners it seeks to emulate. Levels of commercialisation of the world-class research carried out within our universities equally remain stubbornly low. We face a sizeable task.

An entrepreneurial culture requires a number of building blocks: strong support networks; a ready supply of creation and growth finance; simple start-up procedures. But first and foremost it needs people with the ambition, vision, creativity, commitment and leadership ability to drive venture creation and growth on a scale that will contribute to sustainable economic growth.

Scotland’s universities have a central role to play in supporting today’s young people to develop not only the skills but also the mind-set needed to fuel, and to realise, entrepreneurial ambitions. For this reason, the Business Innovation Forum of the Royal Society of Edinburgh set up a Working Group to consider entrepreneurial education in Scotland, with an emphasis on the role of universities. Ably led by Dr Olga Kozlova, who has many years of experience of entrepreneurship development, most recently as Director of the prestigious Converge Challenge, the group met with a number of key stakeholders from the Scottish education and entrepreneurial ecosystems to start a discussion on the challenges and opportunities of the current system.

This paper sets out the picture that has emerged from those discussions. It finds that progress has been made in embedding enterprise and entrepreneurship into higher education, but that powerful opportunities remain for universities, working closely with enterprise support agencies and others in the entrepreneurial ecosystem, to step up support for both potential and existing business leaders.

We hope that this paper acts as a stimulus for further discussion and action by all stakeholders that will support a fundamental culture shift in Scotland: one that prepares our young people not just for life as an employee, but for a vibrant and fast-moving business landscape in which opportunities are to be grasped and ambitions realised.

Finally, I would like to thank Olga and the members of the Working Group – Donna Chisholm, Elizabeth Fairley and Fiona Godsman – for contributing their considerable expertise, experience and time to this project.

**Ian Ritchie CBE FREng FRSE**  
**RSE Vice-President for Business and Chair, RSE Business Innovation Forum**

# Executive Summary

The Scottish Government's ambition is for Scotland to become a world-leading entrepreneurial nation. Scottish universities have a pivotal role to play in achieving this ambition, along with public and private business support agencies, industry and a range of other actors.

The Business Innovation Forum of the Royal Society of Edinburgh (RSE) has produced this discussion paper to provide an overview of *entrepreneurial education*: the skills and experiences that will support Scotland's students of today to become an innovative and dynamic workforce of the future; and how these are currently delivered. Focusing on the role of universities, but with consideration also of the wider entrepreneurial ecosystem, this paper sets out emerging recommendations and points to be considered to ensure Scotland-wide access to all three levels of entrepreneurial skills training:

- Enterprise education (basic business awareness and soft employability skills);
- Entrepreneurship education (applying these skills to the creation of a new venture); and
- Skills for growth (scaling up an existing venture).

It became clear from our discussions that a comprehensive, joined-up approach to the delivery of entrepreneurship education is key to ensuring consistency and quality. We therefore recommend the creation of an **Entrepreneurship Education Forum** which would bring together high-level representatives of academic institutions, private and public business support organisations and industry practitioners, to oversee a comprehensive programme for the delivery of entrepreneurial education in Scotland. This Forum may most appropriately be led and coordinated by a national body such as Entrepreneurial Scotland, but it would require strong endorsement from the Scottish Government and the support of the Scottish Funding Council to be effective.

There has been improvement in the delivery of **enterprise education** within Scottish Higher Education Institutions over recent years, with good practice developed across a wide range of universities. However, provision is still patchy, both within and between institutions, and there are insufficient links between academic departments, business schools and professional services such as careers advisors, technology transfer offices, alumni networks and student unions. An additional challenge is the limited exposure of students within Scottish universities to role models from outwith academia.

In order to enhance the delivery of enterprise education across Scottish universities, a concerted effort should be made to support all academic staff to understand its relevance and importance, and to develop their capacity to introduce enterprise skills into the curriculum. This may require:

- Strong and consistent endorsement from senior management within universities;
- The development of a dedicated Entrepreneurial Strategy by each institution;
- The allocation of funding available through Knowledge Transfer Grants towards the employment of Enterprise Champions;
- The use of metrics within Scottish Funding Council Outcome Agreements to encourage institutions to embed enterprise education across all departments.
- Improved use of role models through the engagement of non-academic lecturers and/or the university's professional services and alumni networks.

The provision of **entrepreneurship education** in Scotland, supporting those who want to create a new venture, is broadly satisfactory. There are both internal university-based support mechanisms such as Launch.Ed and Enterprise Gym, as well as well-established pan-Scotland initiatives such as the Converge Challenge, RSE Enterprise Fellowships, the Scottish Institute for Enterprise and the newly launched Enterprise Campus initiative. However, given the wide range of providers, there is a need for coordination and awareness-raising of the support available.

## Executive Summary

This may be achieved through:

- Improved coordination of activities between key stakeholders and support agencies, by a national umbrella organisation but with active involvement of universities.
- A review by universities of the entrepreneurial ecosystems that exist across their departments to ensure that best practice is identified and shared and that students with entrepreneurial inclinations are supported to progress their ideas.

The scaling up of established ventures is imperative to sustainable economic growth in Scotland. However, at present some 94% of businesses in Scotland have fewer than ten employees. There is a gap in Scotland for supporting existing business leaders to develop growth ambitions by ensuring that they have an excellent grounding in the fundamentals of entrepreneurship from which their business can grow. While this overlaps with entrepreneurship education, **skills for growth**, including world-class leadership capacity, must be embedded at the earliest stage of learning, and universities have a powerful potential to step into this role. Enterprise agencies will be central to supporting the development of programmes suitable for Scottish businesses and in ensuring that businesses can access support. Private sector training providers will continue to be an important part of the ecosystem by adding value through their expertise on specific skills for growth and the flexibility they can offer in the design of training.

There is a varied and vibrant support landscape in Scotland, with a wide range of agencies, incubators and initiatives working to promote business growth. However, there is clearly significant potential to spur growth among a larger proportion of SMEs and to address particular gaps around the provision of key growth skills such as sales and international trade.

Universities, enterprise agencies and other actors in the skills and support ecosystem should continue to rise to this challenge, by giving consideration to:

- the development of courses and executive education programmes (such as those run by MIT and Babson College in the US) suited to Scottish SMEs, which can be delivered in a business setting and made relevant to specific businesses.
- how skills for growth training can most effectively be delivered by business schools, drawing on specific expertise available from other public and private providers.
- national coordination and development of networks between SMEs so that they can support one another in a non-competitive environment.



# 1 Introduction

The 'Scotland Can Do' agenda<sup>1</sup>, launched by the Scottish Government in late 2013, sets out an ambition for Scotland to become a world-leading entrepreneurial nation. Realising such an ambition, however, will largely depend on equipping Scotland's young people with the mind-set and skills that will enable them to take an entrepreneurial approach to their future careers.

The Business Innovation Forum of the Royal Society of Edinburgh has therefore taken a timely look at whether and how entrepreneurial education is currently embedded across Scotland. A key focus of this review has been the role of Scottish Higher Education Institutions (HEIs) in producing graduates with these skills and mind-set. The emerging recommendations set out in this paper are primarily directed at the HE sector. However, the conversion of entrepreneurial potential into real economic and social benefit for Scotland inevitably demands effective partnership across the business support ecosystem. This paper, therefore, also makes some comment on the roles of other actors in this ecosystem and highlights a number of potential actions that would support Scotland to achieve its entrepreneurial ambition.

## 1.1 About this report

This report is based on a number of roundtables and interviews with key stakeholders from the Scottish education and entrepreneurial ecosystems (**Appendix A**), complemented by a review of existing relevant literature (**Appendix B**). It considers three 'levels' of entrepreneurial education – basic enterprise skills, entrepreneurship education and skills for growth – and comments on the current provision, gaps and opportunities for each. Looking to the future, it considers:

- 1 How provisions for enterprise education could be expanded much more widely across the spectrum of undergraduate courses.

- 2 How different stakeholders within the entrepreneurial ecosystem can improve entrepreneurship education for interested undergraduate and postgraduate students.
- 3 How SMEs with high growth potential could be provided with the necessary executive education and training to develop key skills for growth.

This report will be of interest to Scottish universities, the Scottish Funding Council, Research Councils, the Scottish Government, Scottish enterprise agencies and business support organisations, and to profit and not-for-profit organisations within the entrepreneurial ecosystem in Scotland.

## 1.2 Background and context

A recent REAP (Regional Entrepreneurship Acceleration Programme) Scotland report<sup>2</sup> examined the environment in which entrepreneurs in Scotland operate. It identified seven weaknesses and bottlenecks in Scotland's entrepreneurial ecosystem:

- > opportunity perception;
- > start-up skills;
- > networking;
- > product and process innovation;
- > high-growth aspirations;
- > internationalisation; and
- > risk capital.

It further identified areas where Scotland has an opportunity to strengthen its entrepreneurial base. These include skills for growth, an enhanced role for universities and more extensive use of role models, as well as effective connections and improved financing for growth.

<sup>1</sup> 'Scotland CAN DO: Becoming a World-leading Entrepreneurial and Innovative Nation', Scottish Government, November 2013

<sup>2</sup> 'Increasing Innovation-Driven Entrepreneurship in Scotland', The Regional Entrepreneurship Acceleration Programme (REAP) report, REAP Scotland Team, 2014

## Introduction

### 1.3 A focus on the role of universities

The REAP report identified the university sector as crucial to the development and maintenance of a strong entrepreneurial ecosystem. Citing MIT in Boston as an exemplar, it suggests that *“the university sector has the opportunity to play a pivotal role in the further development of Scotland’s entrepreneurial ecosystem and an entrepreneurial culture that is open to the world”*<sup>3</sup>. A key question that this report will seek to address, therefore, is what the role of universities can and should be in delivering entrepreneurial education.

A Universities Scotland report quotes the Institute of Directors Scotland, highlighting that in today’s world *“There is no job security. Six to ten different careers is the norm”*<sup>4</sup>. This emphasises the need for universities to equip their students with employability skills (i.e., self-management, problem solving, team working, business awareness, communication, information literacy, the use of technology) as a central part of their learning journey. Such skills, also referred to as graduate attributes, are defined and embedded across all of Scotland’s HEIs.

There is, however, less consistency across the sector on what the role of universities can and should be in going beyond employability skills, in order to produce graduates with a truly *entrepreneurial mind-set*. It is not expected that a majority of undergraduates will start a business straight after finishing their degree, but whether they do set out to create their own venture, to pursue a career in academia or to find employment within industry, their ability to be flexible, to identify opportunities and to persuade others of the value of their ideas, will be a key pillar of an entrepreneurial culture and a flourishing Scottish economy. Therefore, the role of universities in equipping graduates with these skills is increasingly relevant.

Further, universities have unique resources, in terms of knowledge and networks, to take a powerful role in supporting both potential entrepreneurs and existing business leaders in Scotland to understand the importance of creating a strong venture identity, purpose and offering from the outset. This will be crucial to facilitating successful growth in the future; an area in which, to date, Scottish businesses have been weak.

There are, of course, challenges for universities in delivering entrepreneurial education. The pace with which science and technology move forward makes it difficult, for STEM<sup>5</sup> subjects in particular, to find space within the curriculum to introduce the teaching of practical/vocational skills. Arts and humanities or theoretical subjects often face another challenge, where the relevance of enterprise skills is less obvious. Additionally, course leaders and lecturers predominantly come from academic backgrounds, limiting their ability to bring experience and insight into the realities of enterprise and entrepreneurship to the classroom.

Nevertheless, experience elsewhere suggests that such challenges must be overcome if Scotland is to realise its entrepreneurial ambitions. Research by the Kaufmann Foundation, for example, has found that MIT graduates have set up so many companies that together they create an economic output equivalent to that of one of the top 20 countries in the world<sup>6</sup>. The education that students receive at MIT, their exposure to entrepreneurial role models and a surrounding strong entrepreneurial ecosystem, allows them to translate their academic knowledge into commercial value. The lack of such focus or entrepreneurial culture in Scotland is likely to be one of the reasons why Scotland lags significantly behind the rest of the UK for R&D expenditure in business, despite being an international leader in R&D expenditure in higher education<sup>7</sup>.

<sup>3</sup> ‘Increasing Innovation-Driven Entrepreneurship in Scotland’, The Regional Entrepreneurship Acceleration Programme (REAP) report, REAP Scotland Team, 2014, p33

<sup>4</sup> ‘Taking Pride in the Job’, Universities Scotland, 2013 p7

<sup>5</sup> Science, Technology, Engineering and Mathematics

<sup>6</sup> ‘Entrepreneurial Impact: the role of MIT’, Edward B Roberts and Charles Eesley, MIT Sloan School of Management, 2009

<sup>7</sup> ‘Increasing Innovation-Driven Entrepreneurship in Scotland’, The Regional Entrepreneurship Acceleration Programme (REAP) report, REAP Scotland Team, 2014, p19

## Introduction

### 1.4 The roles of the Scottish Funding Council and Research Councils

The Scottish Funding Council (SFC) is one of the key stakeholders within the entrepreneurial ecosystem in Scotland, working closely with the Scottish Government, Universities Scotland and others. Outcome Agreements signed between SFC and each Higher Education Institution set out what universities plan to deliver in return for the public funding received from SFC. These outcomes are expected to contribute towards improving life chances, supporting world-class research and creating sustainable economic growth, each of which ties strongly with the need for a flourishing entrepreneurial culture in Scotland.

SFC has a central role in facilitating knowledge exchange: ensuring that the research it supports within universities can be accessed and used by business and industry to create real economic and social impact for Scotland. Much of this work involves fostering partnership and interaction between academia, the research community and industry; an important factor in supporting researchers to raise their awareness of business needs and business opportunities. But further, it involves encouraging researchers to consider commercialising their own ideas and supporting these entrepreneurs to create, and to grow, their own ventures.



#### Case Study: **SFC supporting innovation and entrepreneurship in Scotland**

##### **Innovation Scotland**

Innovation Scotland is the strategy of partners – SFC, Universities Scotland, Scottish Enterprise and Highlands and Islands Enterprise – to increase the efficiency, effectiveness, clarity, simplicity and sustainability of support for innovation and entrepreneurship provided at the interface between universities and businesses in Scotland.

The Innovation Scotland Forum, consisting of senior representatives of universities and industry, meets three or four times a year to provide advice to the boards of the partners on the on-going implementation of the strategy.

##### **Innovation Centres**

SFC launched the Innovation Centre programme in 2012 to support transformational collaboration between universities and businesses, working in partnership with Scottish Enterprise and Highlands and Islands Enterprise.

Supported by core SFC funding of £120 million over the period 2013–2018, Innovation Centres have been established across a number of key economic sectors, including digital health, aquaculture, oil and gas and construction, to facilitate secondments, industrial studentships, collaborative working, access to equipment and skills and training for researchers and knowledge exchange practitioners.

##### **Enterprise Campus**

A joint initiative between the universities of Aberdeen, Edinburgh and Strathclyde, each acting as a hub, Enterprise Campus supports postgraduate students from any Scottish university who want to set up their own business.

Funded by SFC, the initial focus of Enterprise Campus is on potential high-growth businesses, providing business planning support, mentors, financial, legal and IP advice, information on funding opportunities and more, tailored to the needs of the business.

## Introduction

Similarly, the seven UK Research Councils are another important source of funding for HEIs and research institutes, through the award of funding to researchers based on the strength of their proposals. They are tasked with core objectives to contribute to the economic competitiveness of the UK and to enhance the quality of life and creative output of the nation. Research Councils, therefore, have a distinctive role to play in the innovation landscape, supporting exploitation of the research they fund. This involves working closely with industry, either directly or through Innovate UK, to couple research to industry needs, to undertake intensive knowledge transfer activities, to provide industry access to cutting-edge facilities and to support the creation and growth of innovative ventures.

Both the Scottish Funding Council and the Research Councils are therefore well-placed to use available mechanisms to encourage every university to develop entrepreneurial education and an entrepreneurial culture. They are further ideally placed to provide a link between realising the potential of the research and innovation ecosystem and supporting a vibrant entrepreneurial ecosystem.

SFC, together with the Funding Councils of each of the UK nations, also jointly conducts the Research Excellence Framework exercise which aims to assess the quality of research undertaken in HEIs and to produce evidence of its impact. While this is a valuable exercise that ensures accountability for public investment in research, it also acts as a driver for HEIs to prioritise the employment of academic, research-active staff, and as a disincentive to employ lecturers from enterprise and industry backgrounds.

### 1.5 The roles of enterprise agencies and business support bodies

Scotland has a vibrant landscape of business support, with:

- two over-arching national enterprise agencies, Scottish Enterprise and Highlands and Islands Enterprise;
- industry-specific public bodies such as VisitScotland and Creative Scotland;
- specific support for SMEs through Business Gateway;
- specific support for different aspects of business; e.g., Skills Development Scotland, Talent Scotland and Scottish Development International;
- a wide range of membership bodies, such as Entrepreneurial Scotland, the Scottish Council for Development and Industry, Scottish Chambers of Commerce, the Federation of Small Businesses Scotland, Scottish Engineering and Scotland Food and Drink;
- business incubation centres and accelerators focused on specific industries and/or geographic locations, such as Entrepreneurial Spark, Creative Clyde and Codebase;
- strategic infrastructure projects such as the Edinburgh BioQuarter and Energetica in the northeast of Scotland.

All of these bodies do and will have an important role in the development of the strong entrepreneurial culture envisaged in the Scottish Government's Scotland Can Do agenda. They have a complementary role to play, alongside universities and other educational institutions, in supporting people with innovative ideas to access the skills and resources required to put their ideas into action and create their own venture.

Further, they have a principal role in supporting those who have already established a viable venture to grow their operations, increasing the economic and social benefits for Scotland.

**“We will support Scotland’s entrepreneurial ecosystem, supporting entrepreneurs, spin-outs and start-ups with ambition, significant growth potential and the capability and confidence to trade on a global platform.**

**We will engage with partners such as universities, Business Gateway, Scottish EDGE, Entrepreneurial Scotland, Informatics Ventures, Edinburgh BioQuarter and a growing range of emerging private sector ‘accelerators’, to improve support for companies started by entrepreneurs.”**

*Scottish Enterprise,  
2015–2018 Business Plan, p7*

## Introduction

The support available from these bodies to potential entrepreneurs, and to business founders looking to grow their company, ranges from online resources providing an introduction to aspects of business management, to intensive account management for potential high-growth companies. Free advice on business planning; identifying and sourcing necessary skills; legal, financial and IP issues; fundraising opportunities; mentoring services; and assistance with customer and supplier contacts are among the services on offer.



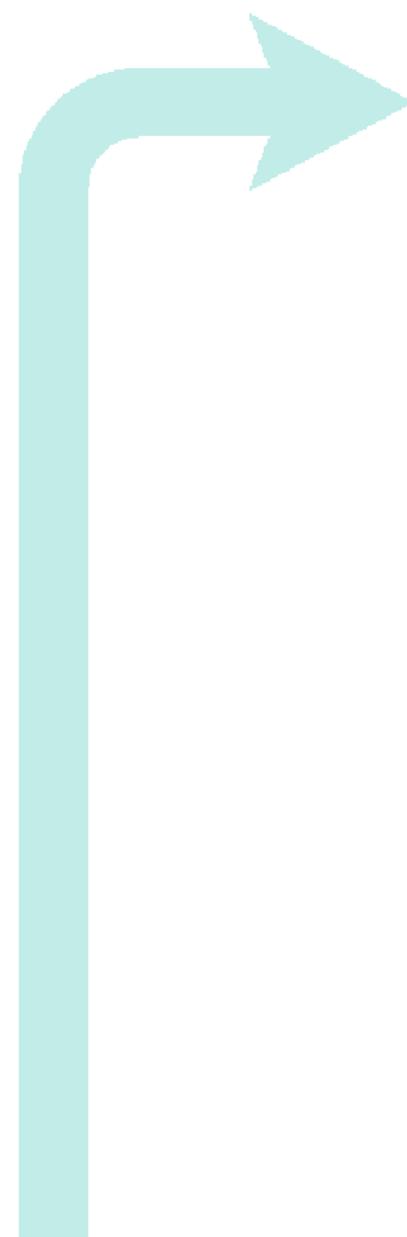
### Case Study: **Skills Development Scotland – Skills for Growth**

In January 2015, Skills Development Scotland (SDS), working in partnership with Investors in People Scotland, launched an innovative product to support companies with ambitions for growth.

Through this initiative, SDS and Investors in People Scotland can help businesses identify their priorities and objectives, link these to the people and skills needs of their organisation and create a tailored action plan.

The plan is then passed to an SDS Employer Engagement Advisor, who can identify appropriate training providers and advise the employer on how they can apply for any public sector funding that may be available to them.

However, it is important that these services are effectively designed, delivered and coordinated in order to ensure that they generate maximum impact and return on investment in support.



# 2 Enterprise education, entrepreneurship education and skills for growth

## 2.1 Definitions and explanations

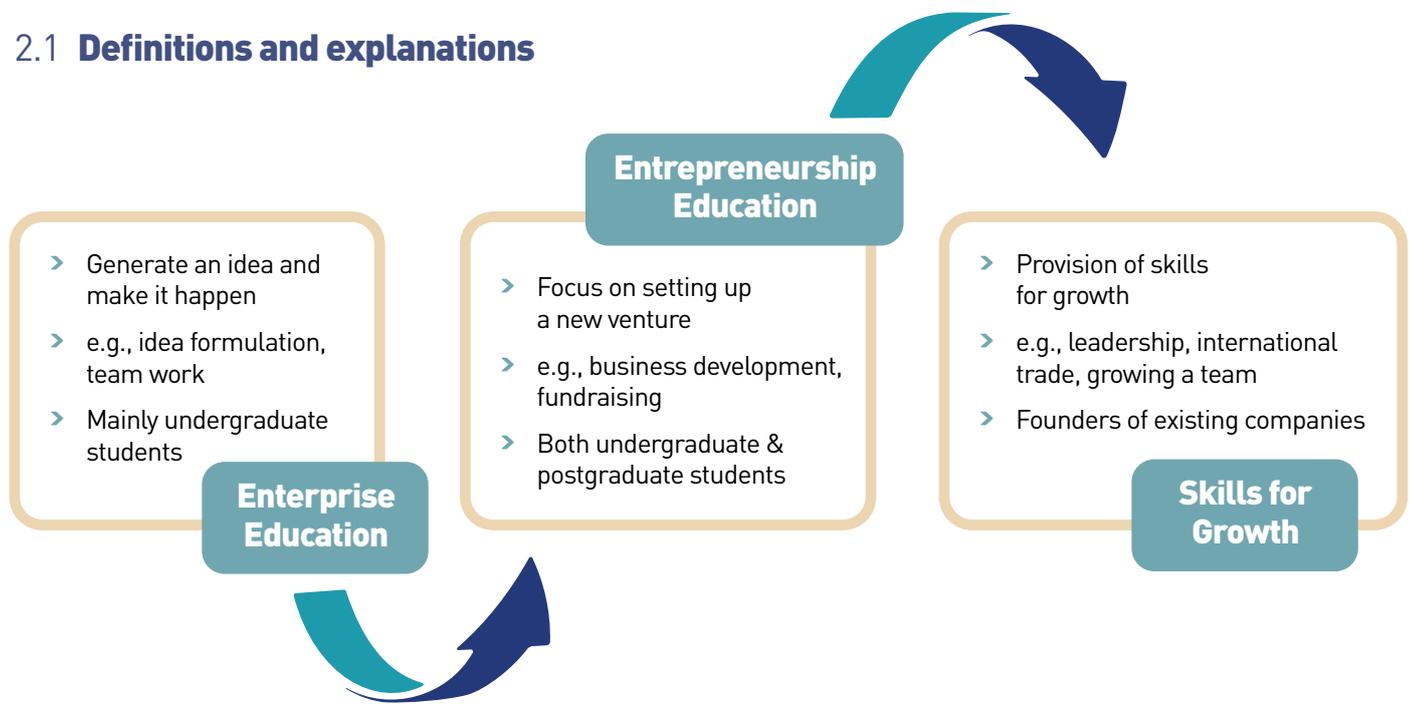


Figure 1 Different types of entrepreneurial education.

### 2.1.1 Enterprise education

Enterprise education is described by the Quality Assurance Agency for Higher Education (QAA) as “the process of equipping students (or graduates) with an enhanced capacity to generate ideas and the skills to make them happen”<sup>8</sup>. This involves skills such as creativity, a can-do attitude, networking and a willingness to take risks without the fear of failure. It aims to provide students with the mind-set necessary to be enterprising, whatever their future career.

It is important for Scotland’s economy that companies of all sizes are able to recruit from a strong, local talent base. Enterprise education seeks to supplement and strengthen general employability skills. It is not about studying business, but rather about engagement with the entrepreneurial ecosystem, exposure to role

models and building the skills to be flexible and adaptable. Enterprise education will, therefore, be valuable and appropriate for most undergraduates and is something that can take place at a more generic level, embedded across the spectrum of undergraduate degree courses.

### 2.1.2 Entrepreneurship education

Entrepreneurship education is defined by the QAA as equipping students with “the additional knowledge, attributes and capabilities required to apply these abilities in the context of setting up a new venture or business”<sup>9</sup>. This may involve enhancement of the skills covered under enterprise education, as well as leadership skills, business planning, fundraising, innovation and business development.

<sup>8</sup> ‘Enterprise and Entrepreneurship Education: guidance for UK Higher Education providers’, QAA, 2012, p2

<sup>9</sup> ‘Enterprise and Entrepreneurship Education: guidance for UK Higher Education providers’, QAA, 2012, p2

## Enterprise education, entrepreneurship education and skills for growth

This type of education targets a smaller audience, as students are rarely ready to set up a business immediately upon graduation. Instead, those with entrepreneurial inclinations will be looking to bank foundational skills that they can use later. Entrepreneurship education should lay the foundations of strong leadership, providing students with an understanding of the role of leader in creating and communicating their vision, mobilising others to commit to and achieve that vision, creating new opportunities and nurturing growth. It should support students to develop an enhanced self-awareness of their own leadership strengths and areas for development.

But courses in entrepreneurship must also provide students with more specific knowledge and skills, including the tools and methodologies that will enable potential entrepreneurs to establish the 'first principles' of their venture. Such first principles will involve defining the core offering, developing a product plan, quantifying the value proposition, identifying the customer base and considering how markets can be reached, as well as testing assumptions and undertaking primary market research<sup>10</sup>.

More generally, entrepreneurship education will also include practical aspects such as an understanding of the economic and business landscape in which businesses operate, the ability to analyse relevant data and extract useful information and the ability to understand market trends. It will also provide students with an understanding of the financial aspects of management; including, for example, an understanding of intellectual property management, reading a balance sheet and how to use Companies House and HMRC.

Again, these are the minimal necessary skills for anyone wishing to run their own business, and will likely be particularly relevant to any student, undergraduate or postgraduate, who is actively considering the commercialisation of an idea or product. However, many of these skills will also be useful for graduates who want to have control of their careers and to understand the business context in which they are working.

### 2.1.3 Skills for growth

Skills for growth training is aimed at building the skills, understanding and support networks of existing SMEs and business leaders so that they can expand and reach bigger markets. There is a continuum in the entrepreneurial education system, as the successful scale-up of a business will in part depend on the strength of leadership abilities and decisions made at the point of creation, and in particular on the solidity of the 'first principles' that lie at the heart of the business. For many businesses operating in Scotland today, including those which have been established by owners without any formal entrepreneurship education, such an approach will not have been taken at the outset. Therefore 'skills for growth' training will, in fact, start at an earlier step, ensuring that the business leader has access to high-quality entrepreneurship education that places these fundamentals at the heart of the process, establishing a solid base from which to grow.

Once this base has been established, skills for growth training will include the delivery of in-depth knowledge of a wide range of specific aspects of business. These skills might include, for example, broadening leadership abilities, understanding international markets, increasing sales, growing a team or navigating merger or acquisition opportunities.

There are a lot of 'lifestyle businesses' in Scotland, which never grow beyond a minimal size. In 2014, the Federation of Small Businesses estimated that 94% of Scottish companies are classified as micro-enterprises with fewer than 10 employees<sup>11</sup>.

In order for Scotland's economy to grow, there is a need for new and established businesses to continue expanding, providing jobs and training for new graduates and established professionals. There is also a need to encourage overseas businesses to open UK offices in Scotland, which requires Scotland to have the skills and talent base to support these businesses.

<sup>10</sup> For an example of such methodologies, see [www.disciplinedentrepreneurship.com](http://www.disciplinedentrepreneurship.com)

<sup>11</sup> 'Voice of Small Business Member Survey – Scotland', The Federation of Small Businesses (FSB), 2014, p4

## Enterprise education, entrepreneurship education and skills for growth

Skills for growth training will be delivered through a range of partners, at a range of levels, including universities (particularly through their business schools), enterprise agencies, other business support bodies and networks, and private training providers. Given the range of bodies involved in the delivery of skills for growth training, coordination is key and such training may be delivered under the banner of a dedicated body, bringing together expertise from private, public and academic sources.

### 2.2 Why entrepreneurial education is important

Without an entrepreneurial heart in Scotland, there can be no growth or wealth creation. Wealth creation is not just down to individual entrepreneurs; we need to acknowledge that there is a broad range of people, in organisations of all

sizes, who must also be 'intrapreneurial' in order to make the companies they work for successful. Enterprise skills, including the flexibility to overcome unanticipated challenges and to move successfully between jobs, or indeed careers, are vital to the success and resilience of the local workforce. They should be embedded in university curricula and in wider Scottish society.

Venture creation may always remain of interest to a smaller subset of students, but universities can create the ecosystems within which those who do have entrepreneurial inclinations can find their own pathways. A fully developed ecosystem (**Figure 2**) can provide the full pathway of support for entrepreneurship in Scotland, from the creation of an entrepreneurial mind-set in undergraduate students, right through to the growth and expansion of Scottish businesses into global markets.

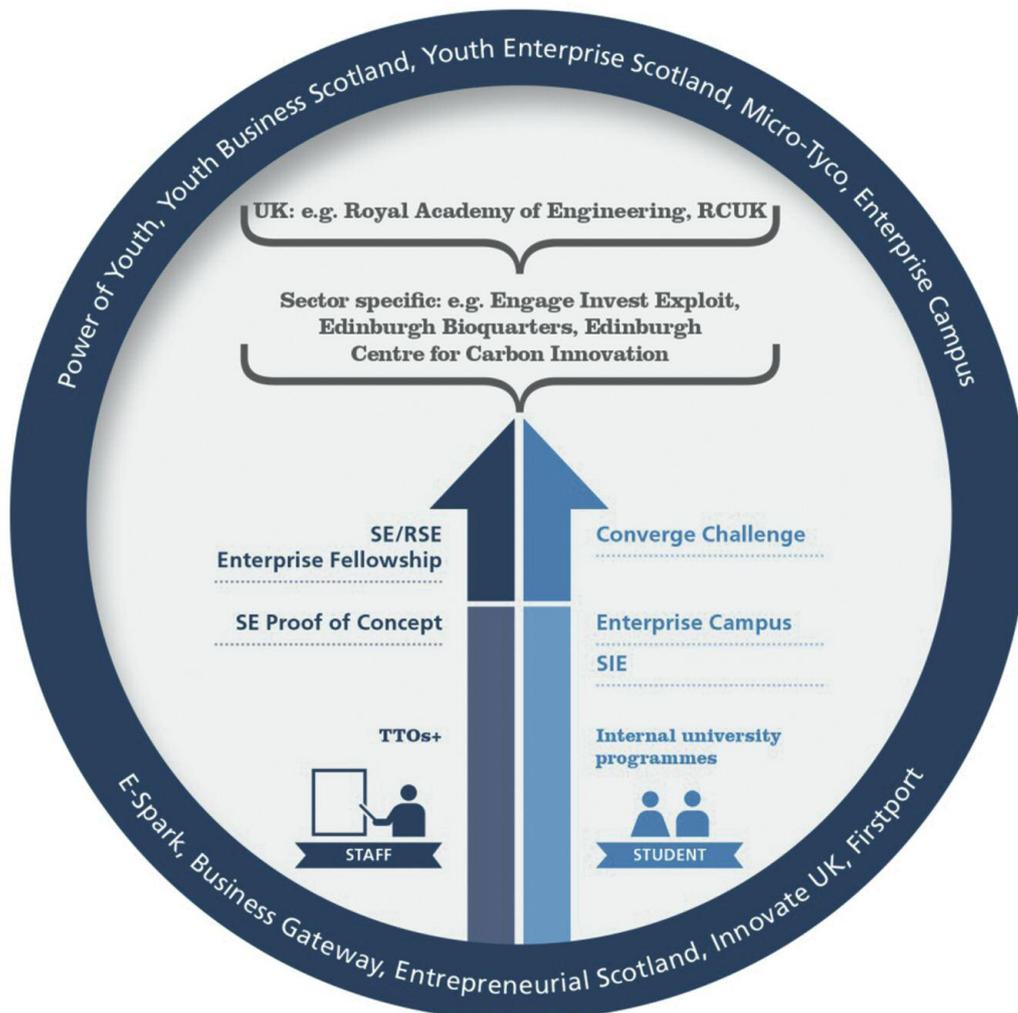


Figure 2 Scotland's entrepreneurial ecosystem.  
Figure provided by Converge Challenge.



**What do current students think?**

## Do you think Enterprise Education is important, and if so, why?

**'I think Enterprise Education is particularly important for those who have not decided what their ideal career looks like, although I think that basic entrepreneurship should be taught to everyone to ensure that everyone is aware of this potential career option'**

Third-year Business & Management student

**'Yes, the economy is changing fast and it is much harder to get a job, regardless of amazing qualifications! I think it is very important students learn and do more to do with enterprise; learning important skills such as promoting and marketing, networking, learning to speak in front of people, and of course coming up with new ideas to help in the future.'**

Second-year Business HND student

**'Yes – because a lot of business skills (finance, planning, tax) I feel are the biggest reason for computing science students not to consider enterprise as an option.'**

Fourth-year Computer Science student

**'This depends...if you mean an “academicised” version of entrepreneurship education, then I don't think it will be that successful in attracting and creating more entrepreneurs. If enterprise education means using a range of methods and means to attract and support budding entrepreneurs then it would be important. Because enterprise gives you skills and options.'**

Second-year International Relations student

# 3 Entrepreneurial education: current provision, challenges and opportunities

## 3.1 Enterprise education

For the reasons set out in Sections 1 and 2, we believe that the soft skills comprising enterprise education should be embedded within the undergraduate curriculum, where they can reach the majority of the future workforce, and where they can lay the foundations for those who want to pursue future entrepreneurial careers.

**“While there are hot-spots of entrepreneurial activity [in Scottish Universities], the sector is generally characterised as providing a disciplined intensive education, rather than a strongly entrepreneurial experience.”**

*REAP Scotland report*

### 3.1.1 Demand and provision

The Economist Intelligence Unit’s 2014 report *Helping Entrepreneurs Flourish* conducted two global surveys of young people and entrepreneurs that demonstrated the importance of enterprise education and the role of universities to provide it (see Figure 3<sup>12</sup>). The data shows that only a fifth of young people consider that the existing provision of enterprise education is sufficient within the universities and nearly 80% agree that more needs to be done.

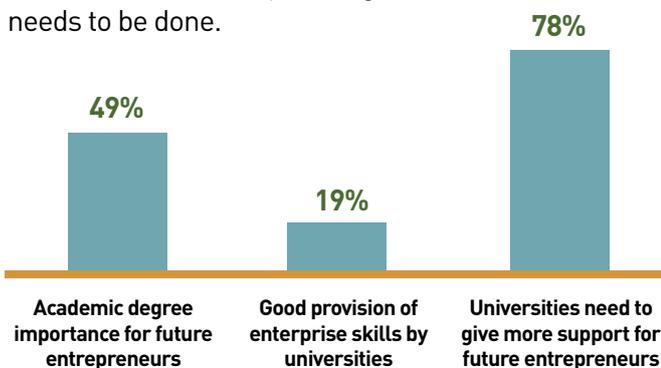


Figure 3 Provision of enterprise education within higher education

There is clear evidence that enterprise education is relevant to the undergraduate community in Scottish HEIs from across the disciplines. Some 18% of graduates were self-employed after finishing at Scotland’s Rural College (SRUC). For graduates from the Edinburgh College of Art and Glasgow School of Art, the number is even higher at 25%, reaching 45% for graduates of the Royal Conservatoire of Scotland<sup>13</sup>.

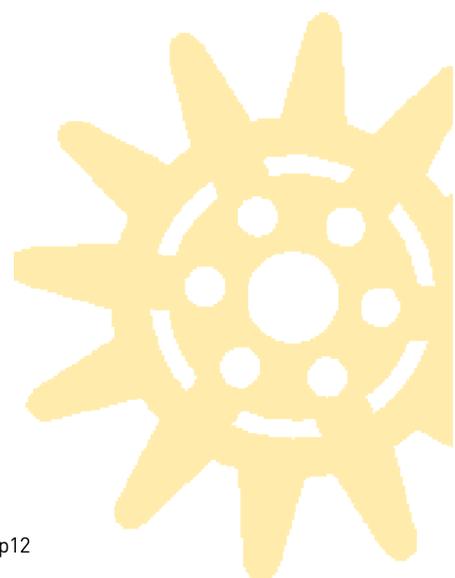
However, at present in Scotland there is patchy integration of enterprise education into the undergraduate curriculum.

**“We don’t have anything like enough [provision in HEIs]... universities tend to be much siloed.”**

*Roundtable with university representatives and entrepreneurs, 7 October 2014*

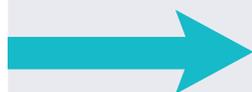
**“It’s difficult to identify any universities that are beacons of good practice across the board. Bits and pieces of different universities are good... but they are not embracing this across all faculties”.**

*Roundtable with governmental bodies, 29 October 2014*



<sup>12</sup> ‘Helping entrepreneurs flourish: rethinking the drivers of entrepreneurship’, Economist Intelligence Unit, 2014, p12

<sup>13</sup> ‘Taking Pride in the Job’, Universities Scotland, 2013 p86



**What do current students think?**

Is there sufficient provision of Enterprise Education in Scottish universities? Could you name some examples? What is missing?

**“Within Strathclyde University, yes; however, speaking to individuals at other universities highlights a lack of entrepreneurship with some. Strathclyde has many budding entrepreneurs who often present as guest speakers as well as having facilities to promote enterprise education, such as the Hunter Centre and Enterprise Hub. The ease of access to the help available is missing, as many students are not aware of the services available to them within the university.”**

Third-year Entrepreneurship and Marketing student

**“I think that business students do have sufficient exposure to enterprise classes; however, I think that entrepreneurship needs to be emphasised more to non-business students.”**

Third-year Business and Management student

**“In St Andrews, there is an Enterprise and creativity module which gives you hands-on experience of starting up a business. What is missing is a broader intervention on why entrepreneurship is a viable, if not more of a path to future success. Before we can provide opportunities for people who are already interested in entrepreneurship to pursue it, there needs to be more effort to attract people to the idea.”**

Second-year International Relations student

**“I think it needs to be shared across different course areas. There are business societies and organisations, but we need more examples of people from different backgrounds in business.”**

First-year Philosophy student

## Entrepreneurial education: current provision, challenges and opportunities

It largely depends upon the course director to weave the teaching of these skills into the course, and there is a challenge for course organisers as to whether, and how, they can fit this type of education into the curriculum. For some courses, enterprise education is far more naturally incorporated than for others. For example, courses such as theoretical physics and mathematics are far less likely to incorporate soft skills related to project management, team-working and product or system design, than subjects like engineering, which have strong practical elements. From the Arts and Humanities, the creative arts and journalism are good examples of subject areas in which enterprise education is more readily incorporated into the curriculum.

**“The biggest uptake of enterprise education we have seen came from STEM subjects; engineers could really see the direct benefit to their careers. There is increasing interest from journalism students, since they are likely to become freelancers after they graduate.”**

*Professor Eleanor Shaw, Head of the Hunter Centre for Entrepreneurship*

**“There are pockets of good practice, for example at Edinburgh, Strathclyde and Heriot-Watt, but this is not across the board... In engineering, accreditation requires that these soft skills are being taught, so they are already part of the course. This is not so in all subjects. Experiences that expose students to risk and failure and which build confidence are missing.**

*Roundtable with university representatives, 27 October 2014*

At postgraduate level, there are more opportunities emerging for students to gain enterprise education as part of their courses. The majority of Centres for Doctoral Training (CDT) in Scotland embed aspects of enterprise education into their programs. The CDT in Integrative Medicine has a stated theme of ‘enterprise’ running throughout its work, so that any students coming through the Centre will develop an awareness of enterprise culture. However, the inclusion of enterprise education is not a stated requirement for the establishment of a CDT<sup>14</sup>.

The Scottish Institute for Enterprise (SIE) provides workshops focused on equipping students with the soft skills described under enterprise education, and has seen significant growth in demand for these classes. SIE are scaling up their programs to meet this demand through providing advice, training and resources to allow teaching staff to deliver enterprise education sessions themselves.

Strathclyde’s Hunter Centre is actively establishing links with other departments, identifying enterprise champions from among the lecturers and educating colleagues about how enterprise education can add value to students. This, and similar provision of enterprise education, should be tracked over time, so that its impacts can be measured and its added value demonstrated.

<sup>14</sup> For example, see EPSRC Centre Requirements <http://www.epsrc.ac.uk/files/funding/calls/2013/epsrc-centres-for-doctoral-training-invitation-to-submit-a-full-proposal/>

## Entrepreneurial education: current provision, challenges and opportunities



### Case Study: **Encouraging an enterprising student ecosystem**

The Scottish Institute for Enterprise, funded by the Scottish Funding Council (SFC) and Scottish Enterprise (SE), works across every HEI in Scotland, supporting staff by delivering enterprise workshops and engaging students via co-curricular events, competitions and business advisors.

In 2013/14, nearly 1000 students (undergraduate and postgraduate) entered SIE's national Enterprise Competitions, with over 250 winning students participating in competition-related workshops to help them develop their ideas. They also won prizes ranging from £20 to £10,000 (totalling over £110k). The students are able to progress from early-stage ideas to advanced business plans and start-ups. Many continue on to benefit from the support of Converge Challenge, EDGE (Encouraging Dynamic Growth Entrepreneurs) funding, RSE Enterprise Fellowships and access to incubators.

SIE's 20 student interns run many local events in every HEI, working with the universities' enterprise hubs and student societies. SIE staff delivered 120 workshops to over 4000 students and provided one-to-one business advice to around 300 students.

In order to extend the availability of enterprise and entrepreneurial education to all students in Scotland, SIE are launching an e-learning platform, which will be a practical interactive resource based on sound online learning principles.

### 3.1.2 **Barriers and limitations**

The challenge facing Scotland's HEIs is in ensuring that exposure to enterprise education can be embedded into undergraduate education, instead of being seen as an optional bolt-on.

If enterprise education is presented to students as an abstract 'business skills' module, then there is likely to be limited uptake. Universities must ensure that the soft skills pertaining to enterprise education are taught in a way that will have relevance to the subject area of the student. The focus of enterprise education should be on making each student more employable in their chosen field of study. The common consensus is that introduction of a separate enterprise module into every course is unlikely to yield the desired outcome.

A further challenge for the Scottish HE sector is that the large majority of teaching staff in Scottish

universities are academics; while only a handful of undergraduate students will go on to pursue academic careers. This means that there is significant variation in the appreciation of the need for enterprise skills and industry awareness amongst teaching staff, and in their ability to provide these skills to students.

Further, it means that undergraduate students do not have access to role models in their field who are employed in a business or entrepreneurial environment, and who can share their experiences of entrepreneurship and industry. The Economist Intelligence Unit identifies access to role models and mentors as the most useful source of inspiration and advice for those considering starting up a business<sup>15</sup>. However, the Research Excellence Framework (REF) currently acts as a disincentive to Scottish, and UK, universities employing teaching staff from outside academia.

<sup>15</sup> 'Helping entrepreneurs flourish: rethinking the drivers of entrepreneurship', Economist Intelligence Unit, 2014, p10

## Entrepreneurial education: current provision, challenges and opportunities

Compounding this 'closed environment' are the limited links between some academic departments and universities' professional services such as technology transfer offices, careers services and development and alumni. Such links have the potential to provide students with exposure to people with a wide range of experience and expertise of the business and entrepreneurial worlds. However, there is little consistency in engagement with such services, both across and within Scottish HEIs.

Finally, a further challenge identified in our discussions has been that it is still uncommon for undergraduate students to collaborate on an interdisciplinary basis. Rather, the vast majority of their work is done within their specific schools and departments, with limited interdisciplinary working. A key aspect of developing an entrepreneurial mind-set is the ability to identify weaknesses in one's own skill set, and to build a team that complements, rather than mirrors, individual strengths and weaknesses. Current undergraduate curriculums do not readily encourage this, although the co-curriculum does provide opportunity for interdisciplinary collaborations.

**“There is difficulty in pulling together cross-disciplinary teams, especially at the undergraduate level... It is about encouraging students to think outwith their classmates. The curriculum doesn't currently encourage that but extracurricular activities located within universities do.”**

*Roundtable with university representatives and entrepreneurs, 7 October 2014*

If teaching staff are supported and encouraged to develop their own enterprise awareness and skills, the delivery of the core undergraduate curriculum offers significant scope to provide opportunities for students to develop their enterprise awareness through the application of subject-relevant skills. Setting tasks based on the core subject content, but that challenge students to be adaptable, to develop creative solutions to problems, to pitch their ideas and to consider the practicalities of implementation, will contribute to a solid foundation in enterprise education. Modes of course-work and assessment based on 'live' projects with public, private or third sector organisations and various challenge-based tasks could be supported by a variety of workshops on intellectual property, creativity or communications, delivered by potential role models.

The final-year project or dissertation undertaken by the vast majority of undergraduates provides an opportunity to build on this foundation: a chance for students to apply the knowledge gained during their course to the design of a system, process or product that could be used in the 'real world'. It would be beneficial for such tasks to involve a panel consisting of both academic staff and practitioners, who would be able to ask pertinent questions about the application of the project to a real-life scenario.

### 3.1.3 Opportunities

Universities are uniquely placed to overcome the barriers discussed above, to deliver undergraduate courses that support the development of soft enterprise skills, to tap into their own vast networks of alumni and professionals and to promote interdisciplinary links.



### Case Study: **Engineering Design Projects, Heriot-Watt University**

For the last five years, Heriot-Watt University has been working with companies on Mechanical Engineering Design Projects. Taking part in this initiative bears no cost to the business and enables 4th-year students within the School of Engineering and Physical Sciences to make a real difference to Scottish companies.

Through the links of Research and Enterprise Services, a number of companies are selected each year with a real-life project for students to work on. It could be anything from developing a completely novel prototype for a start-up to a process optimisation project for a medium-sized established business.

Students work in teams of 4–5 not only to solve the technical challenges, but also look at the costs and supply chain management. They develop skills including: working in a team; time management; liaison with a client; presenting a business case for adoption of the innovation by the company.

There are significant benefits for both sides:

- Benefits from energetic and enthusiastic engineering students who provide fresh perspectives, new ideas and viewpoints.
- Academic expert supervisors and technicians to assist companies in their R&D activity.
- Bridging the gap between academics and industry through input into the education process of future professionals and innovators.
- Companies gain an extra set of hands for special projects with clear remits and defined outcomes.
- Evaluation of engineering students for the possibility of employment after graduation.
- Students gain practical real-world experience and learn new skills.

Indeed, in the US it is common practice for students to be taught some of their classes by current practitioners in the field, who teach as part of their professional portfolio but who are not academics. In light of the significant benefits of exposure to role models, such as enhanced business awareness and aspiration, this is a model that Scotland should seek to

emulate, even in an informal way. However, acknowledging the barriers in the current UK model that make it difficult for this type of industry/HEI interaction, universities and departments should at least make the most of the opportunities offered by their networks of professional services and alumni to provide accessible role models for their students.

## Entrepreneurial education: current provision, challenges and opportunities

### Case Study: **Engaging university alumni – Strathclyde 100**

Strathclyde 100 is a network of entrepreneurial alumni and business people who, through a series of events, support emerging University of Strathclyde entrepreneurs. Entrepreneurs and businesses pitch their ideas to the audience with a view to securing help with specific asks. Chaired by the University Principal, Professor Sir Jim McDonald, Strathclyde 100 events have been running in Glasgow since 2003 with impressive results:

- Introductions to CEO Designates, Directors and Board members.
- Mentoring relationships and advice from industry experts.
- Substantial grant funding and financial investment secured.
- Introductions to a global network of contacts.

Outwith the delivery of the core curriculum, student societies and elective courses provide an arena within which students can work in interdisciplinary teams, manage projects and take risks. Universities have a role to play in enabling students to recognise how the things they are doing outwith the curriculum are relevant to the development of an entrepreneurial mind-set,

and to support continued opportunities for students to get involved.

Gaining experience outwith Scotland would also be a strength for undergraduate students, and opportunities for this type of global exposure could be widened by building upon the work of current initiatives such as the Saltire Scholarship programme.

### Case Study: **Saltire Scholarships**

The Saltire Scholars Undergraduate Internship Programme gives undergraduate students – with huge potential and ambition – the chance to experience the working environment of highly successful firms or high-growth entrepreneurial companies at home and abroad. The programme enables talented students to realise their potential through:

- Challenging work experience – increasing skill sets and commercial knowledge.
- Global perspective – 70% of placements are outside Scotland and those in Scotland are with globally-minded companies.
- Increased leadership capacity – a Leadership Development Day and other events during and beyond Scholars' internships to increase their leadership capabilities.
- Superb networking opportunities – before, during and beyond the internship and as a lifetime member of the Alumni Programme.
- Greater independence – working in a commercial environment and typically living away from home.
- Increased ambition and confidence – fuelled by their experience, network and peers.
- Giving back – Scholars give back their time and resource to their host communities, Scotland and the Saltire Foundation

## Entrepreneurial education: current provision, challenges and opportunities



### Case Study: **Formula Student**

Formula Student (FS) is Europe's most established educational motorsport competition, run by the Institution of Mechanical Engineers. Backed by industry and high-profile engineers such as Patron Ross Brawn OBE, the competition aims to inspire and develop enterprising and innovative young engineers. Universities from across the globe are challenged to design and build a single-seat racing car in order to compete in static and dynamic events, which demonstrate their understanding and test the performance of the vehicle.

FS is:

- A high-performance engineering project that is extremely valued by universities and usually forms part of a degree-level project.
- Viewed by the motorsport industry as the standard for engineering graduates to meet, transitioning them from university to the workplace.
- The kite-mark for real-world engineering experience.

The format of the event provides an ideal opportunity for the students to demonstrate and improve their capabilities to deliver a complex and integrated product in the demanding environment of a motorsport competition.

In Scotland, the Universities of Aberdeen, Edinburgh, Edinburgh Napier, Glasgow, Heriot-Watt, Strathclyde and others participate in the programme.

### 3.2 Entrepreneurship education

As indicated previously, entrepreneurship education will be relevant primarily to those undergraduate and postgraduate students who have themselves identified an interest in pursuing an independent career (whether in academia or industry) or in pursuing entrepreneurial interests, either in the immediate or long term.

Universities have a clear role in creating a strong entrepreneurial ecosystem that will both stimulate students to consider an entrepreneurial approach to their future careers (for example through exposure to role models and by delivering core courses in such a way that they relate to the realities of their respective industries); and provide clear and accessible support for those who wish to take up entrepreneurship education on an elective basis.

However, the demand for entrepreneurship education stemming from this ecosystem will be met not only by universities, which will support initial stages, but also by national intermediaries which go further in supporting students to develop their ideas, entrepreneurial skills and networks.

#### 3.2.1 Demand and provision

Demand for entrepreneurship education is broadly currently well-served in Scotland, with a wide range of programmes supporting business creation across Scottish universities and a good ecosystem for entrepreneurs at the national level. There is an identifiable but flexible pathway for students who wish to pursue entrepreneurial careers, beginning with training and mentoring opportunities within universities, and progressing to competitions and fellowships with national intermediary organisations (**see Figure 4**).

## Entrepreneurial education: current provision, challenges and opportunities



Figure 4 Entrepreneurship education providers in Scotland

The pathway that currently exists provides opportunities for students with different backgrounds and experience to become entrepreneurial. The *Launch.ed* initiative within the University of Edinburgh, for example, is available to any Edinburgh student, regardless of their course. SIE supports and complements individual university initiatives such as *Launch.ed*, providing a national platform for students. *Informatics Ventures*, formed by Scottish Enterprise and the Scottish Funding Council, supports Scottish technology entrepreneurs from

any university and the business community. The *Converge Challenge* provides a step on the pathway for entrepreneurially minded researchers, who have the same end-goal as other entrepreneurs, but whose mechanisms and clientele are often different. It is particularly important that those from more academic, research-intensive backgrounds are provided with the skills and the opportunities to become entrepreneurial, because this is one of the surest ways to translate Scotland's strong academic research into social and economic value.

### Case Study: LAUNCH.ed

LAUNCH.ed provides free startup advice and business support to students at the University of Edinburgh interested in starting a business. The key services it provides are:

- > One-to-one appointments with a business advisor.
- > Workshops, bootcamps and competitions.
- > Mentoring.
- > Access to University of Edinburgh labs and facilities.
- > Patent support and funding.
- > Free legal and accountancy advice.

These services are free, confidential and available to any Edinburgh student for the duration of their studies, as well as alumni up to two years after graduation. To date LAUNCH.ed has supported more than 50 students to launch new companies, including *Pufferfish*, which has developed innovative spherical projection and display systems, and *Peekabu Studios*, which creates cutting-edge recognition software. LAUNCH.ed's services contribute to the development of an entrepreneurial ecosystem around the University of Edinburgh campus.

## Entrepreneurial education: current provision, challenges and opportunities

### Case Study: **RSE Enterprise Fellowships**

RSE Enterprise Fellows receive training in entrepreneurial skills, as well as mentoring and one year's salary to support the growth of their business.

The initial phase of the application is a form outlining the business idea and the applicant's entrepreneurial potential. The next phase involves presenting to a panel of RSE Fellows, including entrepreneurs, industrialists, scientists and marketers.

### Case Study: **Converge Challenge**

Converge Challenge is a business competition for academics, researchers and practitioners. The competition occurs in three phases:

Phase 1: Submit an idea

Phase 2: Pitch the idea

Phase 3: Submit a Business Plan

The first prize is £60,000 for the development of the business.

Winners also receive mentoring, networking opportunities and business support.

**“There is lots of good support for each stage of the business. For example, LAUNCH.ed pushes you towards the right people, the right grants etc. and then, when you grow beyond that support, the RSE Enterprise Fellowship and Converge Challenge kick in and you get more links to industry. These are more focused on actually running a business.”**

*RSE Enterprise Fellow*

### 3.2.2 **Barriers and limitations**

The ability of students to take advantage of, and be successful in, pursuing the existing opportunities for entrepreneurship education is still largely dependent upon how well their university is able to make them aware of, and prepare them for, these next steps. While many universities in Scotland have developed strong entrepreneurial cultures, this is not uniform across all university departments, or across all universities. Even those universities which have a strong culture of creating and supporting spin-outs, such as Aberdeen, Edinburgh, Dundee, Strathclyde and Heriot-Watt, are not doing this across all subject areas. The University of Edinburgh has created a strong entrepreneurial culture around its Informatics department, for example, but this culture does not exist across all the other STEM subject areas.

## Entrepreneurial education: current provision, challenges and opportunities

**“If we could find a way in which every university could examine their entrepreneurial ecosystems, they would all find gaps.”**

*Roundtable with university representatives, 27 October 2014*

**“There is a huge cultural element... it is very hard to generalise across institutions; each has its own ecosystem. Universities should look at their cultures and develop entrepreneurial ecosystems which support enterprising behaviours”**

*Roundtable with university representatives and entrepreneurs, 7 October 2014*

At the level of entrepreneurship education, there are lots of opportunities available for students and academic researchers who are pro-actively seeking them. However, it is important that the pathway is well sign-posted, so that students know which stepping stone is most appropriate to their skill set, client base and development needs.

As opportunities are currently offered by many different providers, it may be the case that universities are not aware of all of them, and may only promote one or two to their students. As a result, candidates may miss the access routes best suited to them. The current provision would serve demand better, therefore, if it was more joined up and clearly signposted.

**“There is a lot of support out there for students who want to start their own businesses, but a lot of students aren't really aware of the support.”**

*Roundtable with university representatives and entrepreneurs, 7 October 2014*

### 3.2.3 Opportunities

There is an opportunity for Scottish universities to look at the cultures which exist around their

different departments, and to examine the degree to which these support the development of an entrepreneurial ecosystem. There are many excellent examples of best practice across Scottish HEIs, a rich source of learning and guidance for those seeking to strengthen their own entrepreneurial ecosystems. In all cases, enterprise education and entrepreneurial mind-sets in students must be key pillars from undergraduate to postgraduate levels.

There is also an opportunity for an umbrella organisation, such as Entrepreneurial Scotland, to work with current players within the ecosystem to stimulate entrepreneurship education and training in Scotland, and to provide clear signposting of pathways and opportunities, to ensure these are not missed by promising candidates. A significant first step in this direction has been the creation of *A Guide to Networking for Entrepreneurs* by Young Company Finance Scotland<sup>16</sup>.

### 3.3 Skills for growth

The delivery of skills for growth has relevance for most business owners who have already set up their own ventures and who are now looking to grow these to reach larger markets. But, as discussed in Section 2, the foundations for successful growth must be laid at the earliest possible stage of venture creation. In reality, therefore, there is a strong link between entrepreneurship education and skills for growth training. In order to produce entrepreneurs with growth ambitions, strong leadership ability and skills for growth must be embedded in their education from the outset. Much of this core education may take place in universities, and in particular within business schools.

At the next step, for existing business leaders who require access to very specific skills for growth training, the delivery of such training needs to take place in a different setting from enterprise and entrepreneurship education. The delivery of these skills needs to be about supporting business in Scotland, not only businesses that have come out of the universities.

<sup>16</sup> A Guide to Networking for Entrepreneurs, Young Company Finance Scotland, November 2014, <http://www.ycfsotland.co.uk/tabid/107/default.aspx?article=Guide+to+Networking+for+Entrepreneurs%201844>

## Entrepreneurial education: current provision, challenges and opportunities



Figure 5 Delivery of different type of entrepreneurial education

### 3.3.1 Demand and provision

Our discussions with academics and practitioners from the fields of enterprise and entrepreneurship, combined with existing data and literature, (see **Appendices A and B**), raise the provision of skills for growth as an area in which there is potential for significant development in Scotland.

The growth of Scotland's innovative ventures is crucial to realising the economic and social benefits of an entrepreneurial culture and has been a key priority for support agencies for many years. Yet, as previously noted, some 94% of Scottish businesses have fewer than ten employees, and indeed, some 68% are sole proprietors/partnerships consisting of only the owner/manager(s)<sup>17</sup>. Between 2002 and 2013, high-aspiration entrepreneurs (i.e., those with significant growth ambitions) comprised, on average, only 10% of new business owner-managers and 3% of established owner-managers in Scotland<sup>18</sup>. In 2011/12, 44% of SME owner-managers in Scotland were satisfied with the current size of their organisation, significantly higher than the UK figure of 33%<sup>19</sup>.

These figures suggest that there is a significant opportunity in Scotland to address low levels of ambition in business owners and a culture of entrepreneurship, combined with the availability of high-quality training in key entrepreneurial skills, will help address this.

The GEM Scotland 2013 report demonstrates that there is *"a link between being innovative, international and engaged in the entrepreneurial community and being ambitious for one's business"*<sup>20</sup>.

**"In the beginning, I spoke to everyone I could; but as your project grows you find that support agencies etc. do not have the skills to help you to the next level. They can't focus on your business."**

*RSE Enterprise Fellow*

The private sector is relatively underdeveloped in this area, with many providers delivering specific skills training on certain aspects of growth, rather than fostering the ambition, mind-set, confidence and leadership abilities that will stimulate entrepreneurs to consider scaling up their venture. Entrepreneurial Scotland has a strong role in advocating skills for growth and fostering networks of contacts, but it does not itself provide training. Scotland's universities are powerful centres of knowledge and expertise for entrepreneurship, but primarily serve people who have come through the university system: a small proportion of Scotland's business leaders.

<sup>17</sup> <http://www.gov.scot/Topics/Statistics/Browse/Business/Corporate/KeyFacts>

<sup>18</sup> 'Global Entrepreneurship Monitor (GEM), Scotland 2013', J Levie, University of Strathclyde Business School, 2014, p23

<sup>19</sup> 'Business Growth Ambitions Amongst SMEs', TBR and Qa Research for BIS, Invest NI, Scottish Enterprise and the Welsh Government, 2012

<sup>20</sup> 'Global Entrepreneurship Monitor (GEM), Scotland 2013', J Levie, University of Strathclyde Business School, 2014, p30

## Entrepreneurial education: current provision, challenges and opportunities

A newly-launched initiative, developed by Highlands and Islands Enterprise, Scottish Enterprise and the Scottish Funding Council, drawing in expertise from MIT and Harvard Business School, is a welcome step forward in filling this gap. The SCALE programme is a five-year international development programme that will offer high impact, internationally-focused training for both potential entrepreneurs and those looking to scale up. The programme intends to draw on the experience of Scottish entrepreneurs and world-leading academics to support the development of global skills and networks<sup>21</sup>. We look forward to following the progress of this initiative as it develops.

Two specific issues were highlighted to us regarding the provision of skills for growth; these were the need for **sales skills** amongst entrepreneurs, and the need for training in tackling **international markets**.

Entrepreneurs need to understand sales and to develop **sales skills** in order to grow and increase their markets. However, there is no professional ladder for the learning of sales skills in the UK, although there is for almost every other type of professional training, including accounting and finance. There is demand in Scotland for tailored sales training, which represents an efficient use of small business owners' time. The US has a much more developed sector for providing these skills and conducting research into consumer psychology to feed into the teaching of sales skills.

Business growth is also heavily dependent upon the ability of businesses to reach **international markets**. Internationalisation is identified as a key pillar of economic growth in both the Scottish Government's March 2015 Economic Strategy<sup>22</sup>, and Scottish Enterprise's 2015–2018 Business Plan<sup>23</sup>.

Scottish Development International (SDI), the international arm of Scotland's enterprise agencies, offers support to Scottish SMEs wishing to export, including the assistance of expert

advisers, support with market research, trade missions and access to networks. The type and extent of support available vary across businesses of different sizes, in different sectors and with different growth potential. Nevertheless, Scottish SMEs are not exporting at the rates that might be expected. According to a 2010 report by Bank of Scotland Commercial, two-thirds of Scottish SMEs are not exporting to international markets<sup>24</sup>. A recent survey of SMEs in the UK, conducted by KPMG and YouGov, reported 19% of SMEs surveyed cite poor understanding of the legal requirements for export as a major barrier to reaching international markets. A further 17% report not having a 'contact organisation' abroad to advise and introduce them, with 16% reporting a lack of understanding of international markets as a challenge to accessing these export opportunities<sup>25</sup>.

**“Scotland is too small to grow a company without exporting. The only way is to expand markets outside Scotland. If you look at the UK's export performance, compared with the US, this is something we are poor at.”**

*Roundtable with enterprise support organisations, 25 November 2014*

To these issues could be added the skills to explore **merger and acquisition opportunities** as pathways to growth. A better understanding amongst entrepreneurs of how to navigate and present themselves for IP, product or business partnership and acquisition opportunities may result in an increase in the number of companies of scale for Scotland, particularly in a sector such as life sciences.

<sup>21</sup> For more information about the initiative, see [www.hie.co.uk/scale](http://www.hie.co.uk/scale)

<sup>22</sup> 'Scotland's Economic Strategy', Scottish Government, March 2015

<sup>23</sup> '2015 – 2018 Business Plan: Building Scotland's International Competitiveness', Scottish Enterprise, 2015

<sup>24</sup> As reported in the *Caledonian Mercury*, 2 June 2010, <http://caledonianmercury.com/2010/06/02/two-thirds-of-scots-smes-miss-out-on-exports/00776>

<sup>25</sup> 'An agenda for growth', KPMG Enterprise in association with YouGov, 2014

## Entrepreneurial education: current provision, challenges and opportunities

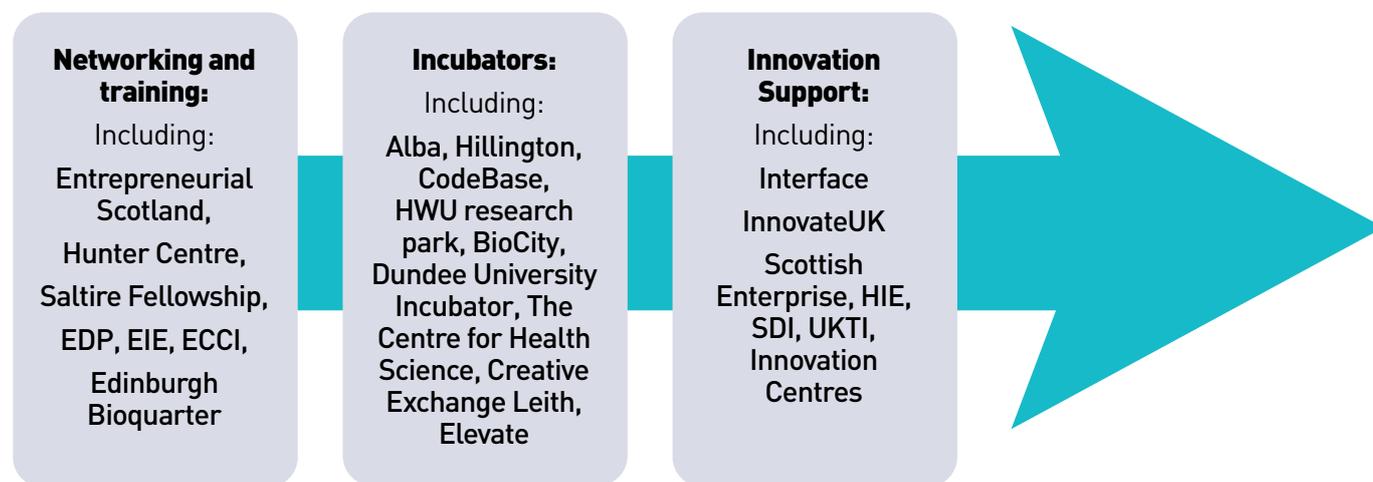


Figure 6 Support for High Growth Companies in Scotland. EDP = Entrepreneurship Development Programme; EIE = Engage Invest Exploit; ECCI = Edinburgh Centre for Carbon Innovation; HIE = Highland and Island Enterprise; SDI = Scottish Development International; UKTI = UK Trade and Investment.

### 3.3.2 Barriers and limitations

The current ecosystem in Scotland is not structured to provide the rigorous, high quality entrepreneurial education that is needed to stimulate growth ambition, the first step in creating ventures with scale-up potential. Scottish universities and business schools are not routinely engaged in providing fundamental skills for growth training; i.e., that which returns to the fundamentals of entrepreneurship education, to business leaders who have not come through the university system. Additionally, most business schools in Scotland, like other university departments, employ mainly academic staff who do not have a background in industry or practical entrepreneurship.

At an advanced stage, Scottish Enterprise and Highlands and Islands Enterprise, tasked with supporting a small number of potential high-growth companies, currently source

this support from elsewhere (e.g., the MIT Entrepreneurship Development Programme), but the costs involved inevitably mean that opportunities are limited and, of course, such programmes are not tailored to Scottish markets. The new SCALE programme builds on the relationships between the enterprise agencies, MIT and Harvard Business School, attempting to overcome these issues. It demonstrates the potential impact of a comprehensive programme of training and support which crosses the boundaries between fundamental entrepreneurship education and skills for growth training, and which brings together practitioners and academic expertise. But Scottish universities do not yet consistently take a similar central, high-profile role in delivering such education to entrepreneurs outwith the HE sector.

## Entrepreneurial education: current provision, challenges and opportunities



### Case Study: **Entrepreneurship Development Programme**

Highlands and Islands Enterprise (HIE) and Scottish Enterprise (SE) support the most ambitious businesses with high growth potential from across Scotland to participate in the Entrepreneurship Development Program (EDP) course at the MIT Sloan School of Management in Boston.

The MIT Entrepreneurship Development Programme is a week-long, high-level, intensive executive education course teaching skills for high-impact entrepreneurship. It is held onsite at the Massachusetts Institute of Technology (MIT) in Boston in January each year.

EDP is a globally-renowned course which blends cutting-edge academic learning with practical team work exercises, live investment pitching, best-practice company visits and international networking. The five-day course takes participants through the entire Innovation Based Enterprise (IBE) venture creation, growth, investment and exit process, teaching core skills of entrepreneurship and the latest thinking in this space. The concepts are taught through lectures, workshops and keynotes from high-profile entrepreneurs, then participants are encouraged to apply the learnings immediately in simulated exercises which test their thinking. The course introduces participants to MIT's vibrant entrepreneurial culture, world-class commercialisation and technology transfer system and connects participants to a global entrepreneurial network. Participants learn how to break down the elements of successful business growth into a step-by-step process and how this formula for success can be applied to their own business or organisation.

Even once the fundamental foundations for growth are in place, time is a serious limitation to SMEs participating in the additional specific skills training required to grow their businesses. Those running businesses are unlikely to have the time to commit to attending the types of skills workshops and seminars that are appropriate at university level, or for new entrepreneurs. This means that the provision of skills training at this level needs to be tailored to suit those with limited time to spend away from the running of their businesses, and will need to reach a new level of relevance and specificity. It also means that information about the support and training that is available must be easy to find.

A further requirement of skills for growth training at this level is that it be centred around the entrepreneur, rather than focusing too heavily on business models. A limitation to the delivery of skills for growth training occurs when support is focused too much on the business model of a company, rather than on the individuals running it. The success of a business depends to a large degree upon the individuals involved, and their abilities to adapt, improve and progress. Better support of leadership teams in SMEs is needed. A well-supported entrepreneur could create several businesses or innovations during their lifetime, so nurturing the individual is essential.

**“Business people are short of time. They don't want to go to university-style classes. They need to feel as though they are also working on their business whilst they are receiving the training. It has to be very relevant.”**

*Roundtable with enterprise support organisations, 25 November 2014*

## Entrepreneurial education: current provision, challenges and opportunities

### 3.3.3 Opportunities

Scottish Enterprise, in its Business Plan 2015–2018, recognises that meeting Scotland’s ambitions for an innovative economy will require a transformation shift, with the *“need to adapt a more radical and flexible approach to supporting sectors and companies... seeking new delivery models alongside others like Business Gateway, to engage more companies and generate much greater impact from that support”*<sup>26</sup>.

We have identified a gap in Scotland’s entrepreneurial ecosystem for supporting Scotland’s business leaders to develop growth ambitions, and ensuring that they have an excellent grounding in the fundamentals of entrepreneurship from which their business can grow. If universities were to step into this gap, particularly by diversifying the experience of their teaching staff and designing flexible programmes suitable for existing business leaders, they would potentially have the power to create real transformation across Scotland’s entrepreneurial culture. With their extensive knowledge bank, far-reaching alumni networks and recognised excellence at international level, universities are in a powerful position to foster ambition and an international mind-set amongst Scotland’s entrepreneurs, and to support them to realise these ambitions. Where universities have taken such a role (not only in Boston, but also, for example, Aalto University in Helsinki), they are already at the heart of flourishing entrepreneurial cultures.

Of course, universities could not take on this role in isolation. Scotland’s enterprise agencies will have an important role in liaising between the business community and universities (and other training providers). They are in a strong position to advise on the needs of business leaders, ensuring that the training offered is rigorous, appropriate and accessible. Private agencies will continue to be

key providers of skills for growth training in areas where they have developed recognised expertise and excellence; e.g., sales training, raising equity investment, dealing with mergers and acquisitions or in governance issues. In addition, they are in a strong position to tailor support to individuals and businesses, bringing a degree of flexibility and relevance that will be vital to potential high-growth ventures.

Indeed, the authors of a 2014 Nesta Working Paper on support for high growth firms suggested that such firms required *“more flexible, responsive and relational support, where peer to peer support and specialised advice (e.g., support for management buy-outs or acquisition of another company) are prioritised”*<sup>27</sup>.

As SME owners are resource- and time-constrained, the creation of a single source of information about where they can get skills for growth training and broader support would be extremely useful. There are numerous courses run by private and public organisations aimed at delivering business skills, but it is not clear that they are all appropriate or relevant to SMEs with specific growth interests. It would be useful for a review of such courses to be carried out and a central point of information about what is available to be created.

A useful way to arrange information on the support available would be to set out priority themes, including sales skills, access to international markets and mergers and acquisitions, and to provide links to resources and organisations providing information and support around those themes. More courses tailored to meet the needs of specific SMEs, delivered on-site and addressing specific issues within the business, are likely to be needed to meet demand.

<sup>26</sup> 2015 – 2018 Business Plan, Scottish Enterprise, 2015, p6

<sup>27</sup> ‘Increasing the Vital 6 Percent: designing effective public policy to support high growth firms’, R Brown, C Mason, S Mawson, Nesta, 2014.

## Entrepreneurial education: current provision, challenges and opportunities

**“Entrepreneurial Scotland could help to build and signpost networks... There needs to be a place where businesses look and can instantly see the roadmap for where they go for each stage of support.”**

*Roundtable with enterprise support organisations, 25 November 2014*

There is a further opportunity for a national body to develop networks between SMEs in Scotland so that they can support one another in a non-competitive environment. This may, for example, build on the work of Interface, which connects Scottish businesses and researchers in certain industries with the aim of creating a culture of innovation and collaboration<sup>28</sup>.

Some businesses will have collective ambitions, such as reaching a global market with a local product. If trusting relationships can be facilitated between them, they will have a greater opportunity to achieve their ambitions through collective energies than alone.

As the export market represents a significant growth opportunity for SMEs, and as the Scottish Government has set a target to increase the value of Scottish exports by 50% by 2017, a global outlook could also be supported through the development of international networks for SMEs and entrepreneurs. This type of network could be grown out of communities such as GlobalScot and Entrepreneurial Scotland.

### Case Study: **Scottish Rapeseed Oil**

Scottish Rapeseed Oil, or Scottish Gold as it now known, is a group of eight independent Scottish producers of cold-pressed rapeseed oil. Collectively they have created a vision to grow and expand the Scottish rapeseed oil market.

Interface Food & Drink and Scotland Food & Drink approached the companies to explore the creation of a common interest group in which the producers could work together with academia to identify and respond to any industry-wide challenges and opportunities.

#### **Aims of the Group**

- Develop market insight into the size of the market and track the performance of other brands (both Scottish and non).
- Joint development of products and/or marketing to the mutual commercial benefit of participants.
- Encourage collaborative research projects with academia to improve competitiveness.
- Improve communication between industry and academia, giving industry the opportunity to steer research.

Having launched at the Royal Highland Show 2014, the group will work to continue to grow and contribute greater value to the overall Scottish food and drink industry and drive increased sales for all eight producers involved in Scottish Rapeseed Oil.

<sup>28</sup> For more information, see <http://www.interface-online.org.uk/>

# 4 Emerging recommendations

The literature review and roundtable discussions that have informed this paper have identified a number of issues in the current delivery of entrepreneurial education. If Scotland is to become a truly world-leading entrepreneurial nation, further significant and co-ordinated efforts must be made to embed an entrepreneurial mind-set in our students and graduates of today. A number of opportunities have been presented in the course of this paper, and we call on all actors in the Scottish entrepreneurial ecosystem to consider the next steps in grasping these opportunities and strengthening Scotland's entrepreneurial culture.

## 4.1 For the Scottish Funding Council and Research Councils

We suggest that:

### 4.1.1

SFC uses the levers it holds to encourage the formation of an Entrepreneurship Education Forum, consisting of high-level representatives of academic institutions, private and public organisations and industry practitioners, tasked with developing practical ways of enhancing entrepreneurial education across Scotland. This Forum may most appropriately be led by a national body such as Entrepreneurial Scotland, but strong endorsement by Scottish Ministers and the support of the SFC would be essential.

### 4.1.2

SFC encourages allocation of some of the funding available through Knowledge Transfer Grants to establishing entrepreneurial networks and funding an Entrepreneurial Champion (Head of Enterprise and Entrepreneurial Strategy) for each institution.

### 4.1.3

SFC and Research Councils use Outcome Agreements, criteria and conditions of grant to encourage every university to develop a dedicated, bespoke Entrepreneurial Strategy which takes into account the specifics of teaching, research and knowledge exchange strategies of each institution. These strategies would embed enterprise education into the core curriculum and encourage stronger links with industry.

### 4.1.3

Funding and Research Councils recognise the value of non-academic staff and industry experts in delivering aspects of skills training and employability skills, providing students with exposure to a wider range of perspectives and experiences relevant to their subject area. Criteria should enable and encourage universities to employ experts from outside academia. This could be done by adding to 'impact' measurements on the diversity of staff.

## 4.2 For universities

We recommend that:

### 4.2.1

Universities support all academic staff to understand what entrepreneurial education is and its importance, and to develop their capacity to introduce enterprise skills into the curriculum. This will require a multi-level approach targeted at different parts of complex university structures:

- a) High-level endorsement from the Principal's office, particularly involving the Deputy or Vice Principals for Learning and Teaching and for Research and Knowledge Exchange.
- b) The establishment of enterprise champions within each academic department to enable the penetration of an entrepreneurial mind-set. Champions may be identified from among participants of the Scottish Crucible, members of the Young Academy of Scotland or those who have experience of business creation or industry. A key role of enterprise champions would be to support teaching staff to develop their capacity to incorporate enterprise skills into the core curriculum.
- c) Entrepreneurship education providers within each university (business schools, entrepreneurship centres, technology transfer offices, careers advisers, etc.) provide workshops on the importance of enterprise education to support champions, participants of programmes such as Scottish Crucible and staff.

## Emerging recommendations

- d) Business schools within each university encouraged to consider becoming part of the Small Business Charter<sup>29</sup>: an award scheme designed to recognise business schools with exceptional levels of engagement with small businesses. This would enable initial evaluation of the business schools' engagement in supporting the growth of small firms, engaging other stakeholders in the growth agenda and providing their students with relevant start-up support.

### 4.2.2

**Universities build enterprise education into the undergraduate curriculum, ensuring that all students have sufficient exposure to enterprise skills and opportunities to practice such skills in the context of their own subject area.**

- a) All undergraduate students have increased opportunities within their respective courses to access and practise basic employability and enterprise skills, including identification of opportunities, creative problem solving, teamwork and pitch training.
- b) Employability and enterprise skills training is delivered by a wide range of role models from among the alumni and business contacts of the universities. This would serve the additional purpose of bringing together different professional services and academic departments of a university.
- c) Students are assisted to recognise the value of the experience and skills they gain through their activities in the co-curriculum, including interdisciplinary learning, decision making, team building etc. The university's careers service could provide support by producing resources and presentations that highlight the skills sought by employers and examples of how these skills might be demonstrated within the co-curriculum.

- d) Final-year projects, where possible, provide an opportunity for the application of subject-relevant skills, challenging students to apply their knowledge and understanding to real-life problems. Demonstrating such ability would make graduates vastly more employable.

### 4.2.3

**Universities create opportunities for entrepreneurship and innovation and support students at both under- and postgraduate levels to develop their innovative ideas.**

- a) Universities facilitate or run elective courses and one-off workshops on entrepreneurship for interested students from any academic department. These may be delivered by external agencies jointly with university staff.
- b) Delivery of wider entrepreneurship training to students across the university should be done in collaboration between departments, business schools, careers, alumni and technology transfer services.
- c) Enterprise societies created within each university would help to engage the student population. These societies could be linked to the post of Entrepreneurial Champion, thus providing continuity through changes of student members.

### 4.2.4

**Universities utilise experts from industry to teach modules and engage with students, providing access to role models who can demonstrate routes to success and provide inspiration.**

- a) Scotland should seek to replicate, even in an informal way, the best parts of the US model that provides a greater role for non-academic staff. Practitioners may be invited to be involved in mentoring students, marking project work or delivering workshops and classes.

<sup>29</sup> For more information see <http://smallbusinesscharter.org/>

## Emerging recommendations

### 4.2.5

**Universities develop a consistent entrepreneurial ecosystem with links outside the institution, providing routes and pathways into industry that will enable students to find support to develop their ideas and contacts.**

- a) Universities undertake a review of the cultures that exist across different departments and examine the degree to which these support the development of an entrepreneurial ecosystem. Best practice should be identified and shared.
- b) All departments supported to build links with industry and external agencies, and to signpost opportunities and experiences outside the university to students on their courses.
- c) Academic departments build closer working relationships with business schools and professional services within the university. An entrepreneurial network with representatives from technology transfer offices, incubators, careers and development and alumni, as well as representatives from learning and teaching boards and student associations, could be an example of best practice.

### 4.2.6

**4.2.6 Universities, particularly through their business schools, consider how they can most effectively play a role in providing Scotland's existing business leaders with high-quality entrepreneurship education that fosters world-class leadership capacity, growth ambitions and creates strong foundations for growth.**

## 4.3 For enterprise agencies and business support bodies

We suggest that:

### 4.3.1

**A national body, such as Entrepreneurial Scotland, leads the creation and coordination of an Entrepreneurship Education Forum (as recommended in Section 4.1) to facilitate a coordinated approach to entrepreneurship education and skills for growth training.**

- a) That the Entrepreneurship Education Forum consists of representatives from academic institutions as well as enterprise agencies, private business support agencies and industry practitioners.
- b) That this Forum takes on responsibility for coordinating entrepreneurship education and skills for growth training to avoid confusion for those seeking support. This will include ensuring that pathways from university into industry are well signposted and that agencies are collaborating to deliver appropriate support while avoiding duplication. Clear signposting to support under key priority themes (e.g., sales skills support, international growth) would be useful.

### 4.3.2

**Enterprise agencies work in partnership with universities and private providers to deliver targeted 'skills for growth' training for Scottish businesses, assisting business leaders to develop the skills and networks required for scaling up.**

This may require that:

- a) Enterprise agencies work closely with universities to develop courses and executive education programmes (such as those run by MIT, Harvard and Babson College) suited to Scottish SMEs, which can be delivered in a business setting and made relevant. Sales skills and accessing international markets should be priority areas.
- b) Enterprise agencies coordinate skills for growth training delivered by universities, drawing on private providers with specific expertise to supplement and add value to training programmes.
- c) A national body coordinates and develops networks between SMEs so that they can support one another in a non-competitive environment. Additionally, international networks of SMEs would ease access to global markets.

## *Appendix A:* Organisations represented at roundtables



The RSE would like to convey its thanks to the following organisations and their representatives who took part in discussions that informed this report.

**Entrepreneurial Scotland**

**Heriot-Watt University**

**The Hunter Centre for Entrepreneurship, University of Strathclyde**

**Interface Knowledge Connection**

**The Royal Society of Edinburgh Enterprise Fellowship Programme**

**The Saltire Foundation**

**Scottish Enterprise**

**The Scottish Funding Council**

**The Scottish Institute for Enterprise**

**The University of Edinburgh**

**The University of Edinburgh Business School**

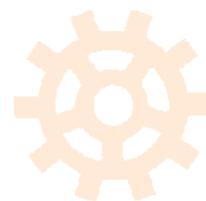
**The University of Edinburgh Informatics Forum**

**The University of Edinburgh School of Engineering**

**The University of Strathclyde**

**The RSE would also like to thank the Saltire Fellows and Scholars and the Scottish Institute for Enterprise interns who provided their views and experiences by completing questionnaires.**

## Appendix B: Organisations Represented at Roundtables



This paper has drawn upon the findings of existing reports on entrepreneurship in Scotland and the UK, including, but not limited to:

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'Scotland CAN DO: Becoming a World-leading Entrepreneurial and Innovative Nation', Scottish Government, November 2013, available at <http://www.gov.scot/Publications/2013/11/7675>

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'Increasing Innovation-Driven Entrepreneurship in Scotland', The Regional Entrepreneurship Acceleration Programme (REAP) report, REAP Scotland Team, 2014, available at <http://www.hie.co.uk/business-support/entrepreneurship/mit-reap/>

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'Taking Pride in the Job', Universities Scotland, 2013, available at <http://www.universities-scotland.ac.uk/uploads/TakingPrideintheJobApril13.pdf>

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'Entrepreneurial Impact: the role of MIT', Edward B Roberts and Charles Eesley, MIT Sloan School of Management, 2009, available at <http://www.kauffman.org/what-we-do/research/2009/08/entrepreneurial-impact-the-role-of-mit>

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'Enterprise and Entrepreneurship Education: guidance for UK Higher Education providers', QAA, 2012, available at <http://www.qaa.ac.uk/en/Publications/Documents/enterprise-entrepreneurship-guidance.pdf>

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'Voice of Small Business Member Survey – Scotland', The Federation of Small Businesses (FSB), 2014, available at <http://www.fsb.org.uk/member-survey-2014>

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'An Agenda for Growth', KPMG Enterprise in association with YouGov, 2014, available at <http://kpmg-22971.dev.iasprojects.com/knowledge-centre/report/an-agenda-for-growth/>

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'Enterprise for All', Lord Young for the Department of Business, Skills and Innovation, 2014, available at <https://www.gov.uk/government/publications/enterprise-for-all-the-relevance-of-enterprise-in-education>

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'2015 – 2018 Business Plan: Building Scotland's International Competitiveness', Scottish Enterprise, 2015, available at <http://www.scottish-enterprise.com/about-us/what-we-do/business-plan>

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'Scotland's Economic Strategy', Scottish Government, March 2015, available at <http://www.gov.scot/Publications/2015/03/5984>

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'Increasing the Vital 6 Percent: designing effective public policy to support high growth firms', R Brown, C Mason, S Mawson, Nesta, 2014, available at [https://www.nesta.org.uk/sites/default/files/working\\_paper\\_-\\_increasing\\_the\\_vital\\_6\\_percent.pdf](https://www.nesta.org.uk/sites/default/files/working_paper_-_increasing_the_vital_6_percent.pdf)

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'Global Entrepreneurship Monitor (GEM), Scotland 2013', J Levie, University of Strathclyde Business School, 2014, available at <https://www.strath.ac.uk/huntercentre/research/gem/>

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'Business Growth Ambitions Amongst SMEs', TBR and Qa Research for BIS, Invest NI, Scottish Enterprise and the Welsh Government, 2012, available at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/187058/12-1169-business-growth-ambitions-amongst-smes.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/187058/12-1169-business-growth-ambitions-amongst-smes.pdf)

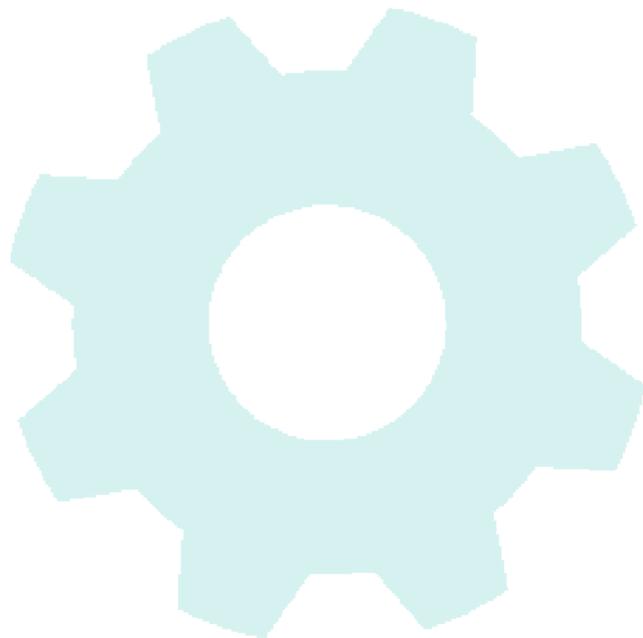
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## *Additional Information*

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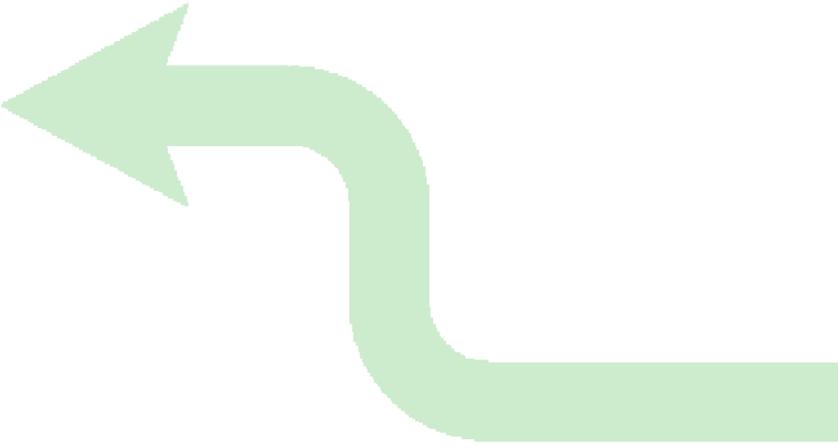


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