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UNIVERSITY ENTREPRENEURSHIP SUPPORT: POLICY ISSUES, GOOD PRACTICES AND RECOMMENDATIONS

AUTHORS' NOTE

This document presents findings and recommendations on university graduate entrepreneurship support as part of the Local Economic and Employment Development Programme's current programme of work on entrepreneurship and as an input into LEED reviews on Skills for Entrepreneurship to be undertaken in 2011-12. It summarises the results of a questionnaire-based survey of universities, case study reviews in selected localities, including LEED contributions to reviews by the OECD Education Directorate on Higher Education and Regional Development, capacity-building seminars and a literature review. The work covers entrepreneurship education and associated start-up support to graduates including enterprise financing and incubation.

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UNIVERSITIES AND ENTREPRENEURSHIP SUPPORT

Indeed, the events that explain why entrepreneurship becomes effective are probably not in themselves economic events. The causes are likely to lie in changes in values, perception, and attitude, changes perhaps in demographics, in institutions ... perhaps in education as well. (Drucker 1993, 13)

Introduction

1.   Entrepreneurs shift economic resources into areas that yield higher productivity and returns. This definition was offered by Jean-Baptiste Say at the beginning of the nineteenth century and, despite the debates that have evolved ever since, it is, in its quintessence, still valid today. Shifting economic resources requires information as well as the will and power to employ this information in decision making. Very often becoming an entrepreneur is the result of a personal decision making process in which one assesses opportunities and their costs (being employed, being unemployed, being one's own boss) and risk-reward relationships (what is at stake). Values, beliefs and behaviours, embedded in the culture of a country and a place, influence this decision as do the individual's knowledge, skills, competences and experience. This paper examines how entrepreneurship values, beliefs and behaviours as well as knowledge, skills, competences and experiences are developed by universities amongst their graduates.

2.   The debate on whether or not entrepreneurship can be taught and learned is well-known, and does not need to be unfolded in this note, which aims to provide practical advice to policy makers on how to stimulate entrepreneurship in a time of post-crisis recovery. We start from the assumption that 'everyone who can face up to decision making can learn to be an entrepreneur and to behave entrepreneurially' and that entrepreneurship is 'behaviour rather than personality trait' (Peter F. Drucker 1993, 26; 34). Entrepreneurship can therefore be promoted by appropriate teaching. To complement entrepreneurship education, certain targeted start-up and early growth support needs to be provided, such as finance and training. Universities are key actors in both areas, and there is a clear role for public policy and local governance in supporting them in these tasks.

3.   The note focuses our attention on a number of key questions: 'what' skills are most important in successfully starting and growing a business, 'where and how' they are developed and 'who' it is all for. It confirms that target groups for policy intervention are diverse and have a number of specificities in terms of attitudes and motivations for entrepreneurship as well as experience. Hence, to be successful, policy intervention requires tailoring of both design and delivery.

4.   It draws on the findings of LEED research and policy advice on universities and entrepreneurship, including:

- The development of a good practice criteria list in consultation with a selection of universities and experts, which universities can use as a tool to self-assess and re-orient (i) their strategy in supporting entrepreneurship, (ii) their pool of financial and human resources, (iii) the support

structures they have established, (iv) their current approaches in entrepreneurship education and start-up support, and (v) their evaluation practices.

- Questionnaire-based interviews with 35 experts from 23 OECD member countries and a questionnaire-based survey, developed from the criteria list, of 16 universities in ten OECD member and three non-member countries.

- In-depth assessments of graduate entrepreneurship support in selected case study regions undertaken in collaboration between LEED and the OECD Education Directorate's Institute for the Management of Higher Education as part of a cross-country review series on the contribution of higher education institutions to city and regional development, covering reviews of Veracruz/Mexico, El Paso/US, Penang/Malaysia and Lombardy/Italy.

- A review of the literature in university entrepreneurship support.

5.   The work will be continued in 2011-12, in particular through the new reviews on Boosting Local Entrepreneurship and Enterprise Creation (CFE/LEED2009/20), which will examine training and support for self-employment among people outside of the formal education system and entrepreneurship training provided in vocational education as well as graduate entrepreneurship support by universities.

6.   The remainder of this note is structured as follows. First a summary will be provided on key debates concerning university entrepreneurship support, including strategic issues in university governance and partnering, incentives and rewards, and entrepreneurship education and the emerging importance of educating educators. This section includes key findings of a series of interviews with entrepreneurship education experts. In a second part, findings from the questionnaire-based survey of 16 universities are presented for the six dimensions of the criteria list. The list of surveyed universities and the questions analysed are presented in Annex A and B. The note concludes with policy recommendations.

1. Key debates on university entrepreneurship support

Strategic issues in university entrepreneurship support

7.   Worldwide, the number of universities providing entrepreneurship support for their students, graduates, researchers and professors is growing. That encompasses both entrepreneurship education, with its two main objectives of generating motivation and attitudes for entrepreneurship and the skills and competencies needed to successfully start-up and grow a business, and the provision of start-up support. Different strategies have been advanced and various forms of support established including actors both within and outside universities. Tailored practices have emerged in educating future entrepreneurs and in helping them to take their first steps in forming and growing a business. Universities have established dedicated start-up support services, often also as single units that centralise and steer a multitude of activities, to offer would-be entrepreneurs and those already in the start-up process consultation and access to networks and premises. Rewarding those who are designing and implementing innovative and high quality pedagogical material and teaching, and those who are sharing and promoting the dissemination of ideas and good practices is of crucial importance for promoting continuation of activities and encouraging professors, researchers and university administration to join.

8.   The emergence and implementation of these entrepreneurship strategies has had an impact on what universities perceive as their 'first', 'second' and 'third' missions, and what the best linkages are between education, research, and promoting social and economic development. Internal governance, positioning in local, national and global levels and strategic partnerships are issues for debate in defining the role of universities in promoting economic development and growth. Universities either use

government schemes, private sector funding or a combination of both to sustain and expand their 'third mission'. In the long-run the goal should be a high degree of self-sufficiency of the university internal entrepreneurship support system (OECD 2010a; 2010b). This involves a broader funding base, including more private financing and less dependency upon time-limited public funding. Activities to this end are different for each university and may range from revenues from licences and the sale of shares in spin-off companies to entrepreneurship training courses and business consultancy. This is often backed up by basic funding of overhead costs for support infrastructure and staff from university budget.

9.   Assisting the establishment of new firms is a key objective of university entrepreneurship support, but not its only one. Creating entrepreneurial mindsets that drive innovation in existing firms is of equal importance, yet success is much more difficult to measure. The economic recession has triggered cuts in government funding and resource allocation for universities and put entrepreneurship education under increased performance pressure. Demonstrating the achievements of entrepreneurship education towards external funders remains a key challenge, as evaluation efforts are still considered to be relatively weak or underdeveloped (Wilson, 2008). The co-existence of tangible outputs, such as, for example, the number of spin-offs and start-ups assisted, and intangible outcomes – creating entrepreneurial mindsets – remains a key challenge.

Entrepreneurship education

10.   Of the many inputs and circumstances contributing to the success of an entrepreneurial venture, having the right skills and competences is of particular importance. Motivated people need the right set of skills to identify entrepreneurial opportunities and to turn their entrepreneurial projects into successful ventures. Starting early in getting familiar with the idea that running one's own firm is a potential career option is important and education can play a core role in this.

11.   Entrepreneurship education in universities has come a long way since the first entrepreneurship course was held by Professor Myles Mace at Harvard. The purpose of university entrepreneurship education is two-fold. Contributing to the creation and development of entrepreneurial attitudes and motivations to start-up a firm is as important as developing the skills needed to successfully run and grow a business venture. Increasing demand for higher education, the above mentioned globalisation of 'tasks', changing knowledge structures and transmission channels, evolving dynamics between industry, government and the education sector, as well as societal demands gave rise to entrepreneurship education in universities. An international study[1], comparing tertiary education students' attitudes to entrepreneurship in 19 different countries across the globe, showed that 43% of students intend to pursue some form of independent employment five years after graduating (GUESSS, 2009).

12.   Which are the skills and competencies that are most useful? Man et. al. (2002) developed a conceptual framework. Drawing from the concept of competitiveness and the competency approach[2], they developed a model of four constructs of competitive scope, organisational capabilities, entrepreneurial competencies and performance (Table 1).

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[1]   The Global University Entrepreneurial Student Spirit Survey (GUESSS), 2008 questioned over 60 000 students in 20 different countries across the world as to their career intentions vis-à-vis entrepreneurship and their attitudes to entrepreneurship and entrepreneurship education

[2]   The competency approach has been widely applied since the work Boyatzis (1982) for the study of individual characteristics contributing to task accomplishment and organisational success.

Table 1.   Skills and competencies for successful entrepreneurship

Competency area	Behavioural focus
Opportunity	Skills and competencies related to recognizing and developing market opportunities through various means.
Relationship	Skills and competencies related to person-to-person or individual-to-group-based interactions, e.g., building a context of cooperation and trust, using contacts and connections, persuasive ability, communication and interpersonal skill.
Conceptual	Skills and competencies related to different conceptual abilities, which are reflected in the behaviors of the entrepreneur, e.g., decision skills, absorbing and understanding complex information, and risk-taking, and innovativeness.
Organising	Skills and competencies related to the organization of different internal and external human, physical, financial and technological resources, including team-building, leading employees, training, and controlling
Strategic	Skills and competencies related to setting, evaluating and implementing the strategies of the firm
Commitment	Skills and competencies that drive the entrepreneur to move ahead with the business

Source: Man et. al. (2002), adapted.

13.   Across OECD countries university entrepreneurship education covers a wide variety of audiences, objectives, contents and pedagogical methods (Fayolle and Gailly, 2008). The demand for entrepreneurship courses, in particular from government side, is growing for science, engineering, and arts faculties (Cooney and Murray, 2008). The underlying assumption is that innovative and viable business ideas are more likely to arise from students pursuing technical, scientific and creative studies. Reality looks, however, slightly different: in Europe and the rest of the OECD, except for the US, the majority of entrepreneurship courses are offered in business and economic studies (Byrne and Fayolle 2010, submitted).

Key findings from an expert survey on entrepreneurship education in OECD countries

14.   In the following, a summary of key findings from a literature review and an expert survey is presented. The survey, conducted in collaboration with LEED by Byrne and Fayolle (2010, submitted), focused on (i) the current main objectives driving entrepreneurship education, (ii) the content of university entrepreneurship education, and, (iii) the teaching methods and pedagogies. The expert survey included 35 experts from 23 OECD member countries, who have on average 13 years of teaching and research experience in entrepreneurship education.

OECD countries differ in their driving objective…:

15.   In some OECD countries, particularly in Australia, Poland, Czech Republic and Italy, entrepreneurship education is still primarily centred on the twin objectives of 'economic development and job creation' (McMullan and Long, 1987). Yet, there are signs of a shift towards the prevalent objective in the US, that is, on the stimulation of growth-oriented ventures (Wilson, 2008). More focusing on individuals, Denmark and the UK, emphasise the guiding objective of creating 'entrepreneurial mindsets' and the need to equip students with skills and competencies that are useful for running one's own business or being employed.

…and in the extent of research-education links in entrepreneurship education:

16.   Research on entrepreneurship education is widely spread in Europe and the US, whereas research results for Chile, South Korea and Japan are non-existent in internationally published journals. Research-

oriented models of entrepreneurship education in eastern Europe are still low in numbers, and conducted only in a handful of institutions (Varblane and Mets, 2010). There is thus a strong need for comparative studies, in order to understand pitfalls, follow common successful trends, and anticipate new approaches in entrepreneurship education.

Traditional methods in courses and teaching methods 'about' and 'for' entrepreneurship:

17.   What entrepreneurship education can achieve may range from a gradual change of mindset, the 'how-to' in multidisciplinary problem solving, to the development of skills and competences needed to successfully start-up and run a business. Although entrepreneurship courses differ across OECD countries, they all share subjects that are either *about* or *for* entrepreneurship (Kirby, 2004). In Europe, the focus is on theory on entrepreneurship and contextual background on the entrepreneur and society, and small business management, whilst venture development and growth is prevalent in the US.

18.   The majority of entrepreneurship courses are related to teaching *for* entrepreneurship. Courses include 'idea creation and opportunity recognition'; 'opportunity assessment'; 'managing the growing business'; or 'new product development'. 'Business planning' and 'new venture creation' courses were by far the most common within this category.

19.   Generalist courses i.e. those that essentially teach *about* entrepreneurship remain popular. Examples include 'The role and importance of entrepreneurship in society' and 'The macro-economic and socio-cultural dimensions of Entrepreneurship'. In Europe entrepreneurship courses that deal with particular national contexts (i.e., 'The Italian Entrepreneur: between individualism and creativity' are frequent. In France, the Netherlands, Finland, Sweden courses on entrepreneurship theory are popular.

20.   Case study teaching methods are often used, although it seems lecture-style classes and traditional (frontal) teaching still form a core part of the curriculum. Sadly, good quality participative, experiential problem-solving-based education is more expensive than traditional 'talk and chalk' style lectures (Cooney and Murray, 2008). Resource requirements are not adequately recognised in funding allocation mechanisms.

Not enough is being done on values, emotions and the ethical component of being an entrepreneur:

21.   The dominance of business planning and venture creation modules leaves little room for addressing values, emotions and the ethical component of being an entrepreneur. In business planning courses, students are often exposed to a very sequential and functional based approach to understanding and learning about venture development, which leaves little room for creativity, values, emotions and the ethical component of being an entrepreneur.

On the differences between Europe and the USA:

22.   Many of the interviewed experts felt that entrepreneurship education in their country was lagging behind the US. Looking at this from the debate in the literature, it seems that whilst the US may benefit from a more mature state and increased legitimacy of entrepreneurship education (Katz, 2003; Kuratko, 2005), the impacts at classroom level have not yet been fully explored. It is questionable whether (i) the course contents and delivery is significantly different to that in Europe, given the differences in the latter, and (ii) whether the US curriculum development is applicable to other socio-economic contexts.

23.   From what is known at present, it appears that US universities are stronger in multi-disciplinary entrepreneurship education. In Europe, building inter-disciplinary approaches, making entrepreneurship education accessible to all students, mixing students from economic and business studies with students from other faculties and with different backgrounds, and creating start-up teams remain key challenges

(EC, 2008). Crossing boundaries between disciplines, and multidisciplinary collaboration, are, however, essential elements in building enterprising abilities (EC 2008, OECD 2010b).

Educating educators

24.   Entrepreneurship as a discipline pioneered the pedagogically organised use of practitioners in the classroom (Katz, 1995). Entrepreneurship education today is characterised by a more eclectic collection of teaching staff than other disciplines.

25.   According to Byrne and Fayolle (2010, submitted), the following actors in university entrepreneurship education can be distinguished:

- Academic staff (professors, lecturers, assistant lecturers)

- Doctoral students and research assistants

- Practicising entrepreneurs

- Pracademics (entrepreneurs employed as university staff)

- Industry experts

- Business professionals i.e. lawyers, consultants, accountants, financers etc

- Incubator or business support staff

- Alumni

26.   Since, most academic teachers have little or no practical experience of being entrepreneurs themselves, calls have been made for more training opportunities for those involved in entrepreneurship training (EC, 2008; OECD, 2008; OECD 2010b; World Economic Forum, 2009). Although entrepreneurs and business practitioners are in general involved in teaching, there are few examples of entrepreneurial practitioners engaged in the full curricula experience. Most frequently, they are *ad hoc* involved in teaching, providing personal testimonials or guest lectures, or acting as member of competition committees.

27.   Byrne and Fayolle (2010, submitted) reviewed the current situation in several OECD countries concerning the training of educators and found different stages of development. They point to the lack of training opportunities to entrepreneurship educators in a number of OECD countries, particularly in Belgium, Chile, Japan and Australia. Interesting initiatives are on the way in the UK, France, Denmark and the US.

28.   In the UK, the introduction of successive rounds of government funding for universities in the last decade significantly impacted on institutional behaviour, and supported new developments in supporting enterprise and entrepreneurship, including curricula innovation (EC 2008). As a result, the UK has been proactive in training for educators. An example is the International Entrepreneurship Educators Programme (IEEP), launched in 2008 by the National Council for Graduate Entrepreneurship. The recent change of government and the financial crisis brought resource tightening, which could result in a less proactive approach. Enterprise Educators UK recently published an 'Enterprise Education Manifesto' for the UK government. Enterprise Educators UK emphasise the pressing need to continuing 'educate

educators to build capacity, embed enterprise throughout the student experience, and to enable enterprise by providing opportunity' (Enterprise Educators UK, 2010).

29.   In France, initiatives have been taken forward at national level to develop exchange, training and research activities (*Académie de l'Entrepreneuriat*). Pedagogical experiences and tools in entrepreneurship are collected and disseminated through a national database, the *Observatoire des Pratiques Pédagogiques en Entrepreneuriat* (OPPE).[3]

30.   In 2004, the Danish government created the International Danish Entrepreneurship Academy (IDEA), entirely focused on entrepreneurship teaching in higher education with 38 universities and colleges as IDEA partners and the participation of a wide range of faculties. IDEA runs an International Master in Entrepreneurship Education and Training (IMEET) and a Diploma Course for Entrepreneurship Teachers.[4]

31.   In the US, the Price-Babson Symposia for Entrepreneurship Educators' (SEE) programs is held every spring on the Babson campus. Cross-disciplinary educators from around the world are invited to attend and the program is designed to build an international cadre of educators who understand the importance of combining entrepreneurship theory and practice in teaching.

2. Good practice criteria and survey findings

32.   The OECD LEED Committee recently surveyed 16 universities in ten OECD member and three non-member countries on their objectives, resources and practices in entrepreneurship support. The questionnaire used for this purpose was developed from the criteria list of good practice in university entrepreneurship support (CFE/LEED 2009/22). The sample included universities that applied for the international capacity building seminar 'Universities, Skills and Entrepreneurship', organised by the OECD LEED Trento Centre in October 2010. All universities registered online for the seminar by filling out an online questionnaire. All sampled universities provide entrepreneurship support. The respondents are either part of senior university management, technology transfer units, or entrepreneurship centres or professors and lecturers or entrepreneurship. Annex A provides the list of surveyed universities, and Annex B the questions that were analysed for this note.

33.   In the following key survey findings are presented for each of the six dimensions of the criteria list, that is, strategy, financial and human resources, support infrastructure, entrepreneurship education, start-up support and evaluation.

Strategy

34.   Universities follow different strategies in entrepreneurship support. Which one they choose is likely to have an impact on what universities perceive as their 'first', 'second' and 'third' missions, and what the best linkages are between education, research and promoting social and economic development.

35.   Box 1 presents criteria of good practice in strategically promoting entrepreneurship in universities.

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[3]   See OECD (2010a) for a brief description of OPPE.

[4]   See OECD (2010a) for a brief description of IMEET.

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┌─────────────────────────────────────────────────────────────────────────────┐
│              Box 1.  Strategy in university entrepreneurship support: criteria of good practice │
│                                                                                 │
│   1.   A broad understanding of entrepreneurship is a strategic objective of the university, and there is top- │
│        down support for it.                                                     │
│                                                                                 │
│   2.   Objectives of entrepreneurship education and start-up support include generating entrepreneurial │
│        attitudes, behaviour and skills, as well as enhancing growth entrepreneurship (both high-tech and low- │
│        tech).                                                                   │
│                                                                                 │
│   3.   There are clear incentives and rewards for entrepreneurship educators, professors and researchers, │
│        who actively support graduate entrepreneurship (mentoring, sharing of research results, etc.). │
│                                                                                 │
│   4.   Recruitment and career development of academic staff take into account entrepreneurial attitudes, │
│        behaviour and experience as well as entrepreneurship support activities. │
│                                                                                 │
│   Source: OECD (2010b)                                                          │
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36.   The universities were asked eight questions concerning objectives of entrepreneurship support, acknowledgement in strategy documents and Internet presence, and incentives and rewards for professors, particularly in terms of recruitment and career development. Their answers are summarised below.

Objectives of entrepreneurship support and acknowledgement in strategy documents

37.   Universities can have different sub-objectives within the broad overall objective of promoting entrepreneurship. The surveyed universities were asked to rank the following six objectives according to their current relevance.
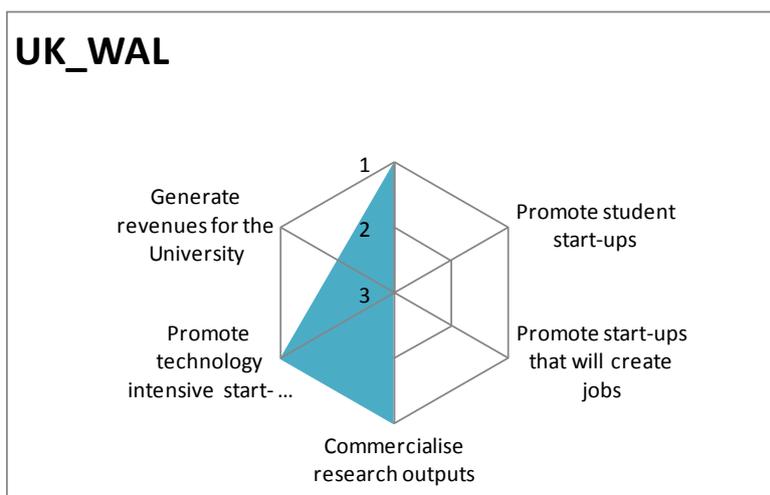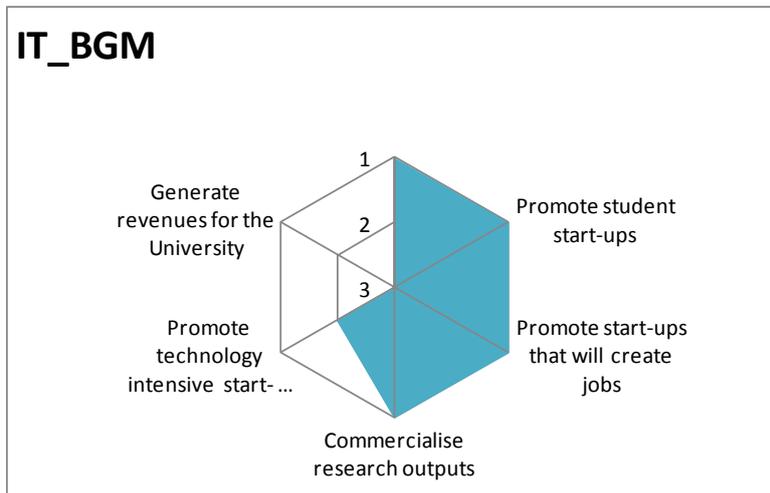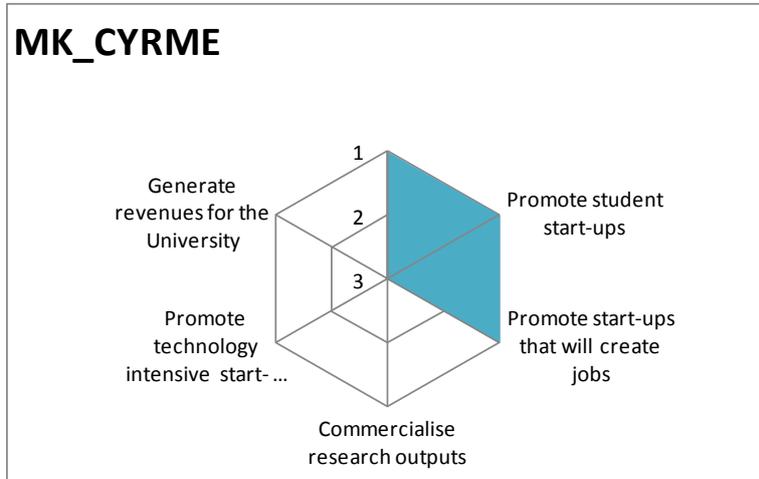
Objective 1: To generate entrepreneurial attitudes, behaviour and skills amongst students	**Objective 2:** To promote business start-ups that will create jobs	**Objective 3:** To promote business start-ups by students
Objective 4: To commercialise research outputs	**Objective 5:** To promote technology intensive business start-ups	**Objective 6:** To generate revenues for the University

38.   Optional answers for each of the six objectives were 'primary objective', 'secondary objective, i.e., important but not top objective', and 'not a key objective' and their respective scores of '1', '2', and '3'.

39.   'To generate entrepreneurial attitudes, behaviour and skills amongst students' is for all universities the primary objective. Next are promoting business start-ups that will create jobs and commercialisation of research outputs, which 40% of respondents considered a primary objective. Promoting business start-ups by students in general is considered by one-third a primary objective, whereas only four respondents chose promoting technology intensive business start-ups and only three generating revenues for the university as their primary objective. For more than half of the respondents the latter is not a key objective of university entrepreneurship support.

40.   The first three objectives in the above list are more student-centred and focused on job creation, whereas the objectives four to six are more university-centred, i.e., on research, technology transfer and revenues. Although all of the reviewed universities show different patterns, three groups can be formed (Figure 1).

**Figure 1. Key objectives in university entrepreneurship support**

MK_CYRME

- 1
- 2
- 3

Generate revenues for the University

Promote student start-ups

Promote technology intensive start-...

Promote start-ups that will create jobs

Commercialise research outputs

IT_BGM

- 1
- 2
- 3

Generate revenues for the University

Promote student start-ups

Promote technology intensive start-...

Promote start-ups that will create jobs

Commercialise research outputs

UK_WAL

- 1
- 2
- 3

Generate revenues for the University

Promote student start-ups

Promote technology intensive start-...

Promote start-ups that will create jobs

Commercialise research outputs

41.   More than half fall into the student-centred and job-creation focused group. The Ss. Cyril and Methodius University in Macedonia (MK_CYRME) is group leader with all primary objectives being equally distributed between promoting attitudes and skills, student start-ups and start-ups that create jobs. The University of Wales (UK-WAL) leads the university-centred group with commercialisation of research outputs and the promotion of technology intensive start-ups being primary objectives along with the generation of entrepreneurial attitudes, behaviour and skills. The University of Bergamo, Italy (IT_BGM) represents the 'in-between' group with commercialisation as one of the four primary objectives and the promotion of technology start-ups as important objective.

42.   Adjunct to the objectives of contributing to economic development and job creation is the objective of generating revenues for the organisation that provides the support. Besides licenses on patents and fees for services, holding a share in spin-off firms is more and more common today. In eight universities there are no legal obstacles to holding a share, and four more plan to introduce the necessary legal framework in the two years.

43.   In all reviewed universities the promotion of entrepreneurship is an acknowledged strategic objective. We have looked into their external communication and the extent of publicity the entrepreneurship support activities receive. All universities, except for one, have strategy documents. Only for one university there is no mentioning of entrepreneurship support in the latter. Also, in nearly all recent Annual Reports, the activities and results of entrepreneurship report are featured.

44.   Information about entrepreneurship support activities needs to reach potential beneficiaries. Hence, Internet presence matters. We have asked university representatives to indicate the number of clicks needed from the university's main website to arrive at information about the entrepreneurship support provided by the university. On average 3.1 clicks are needed. The Lahti University of Applied Sciences in Finland is an outlier with 10 clicks.

Figure 2. Number of 'clicks'
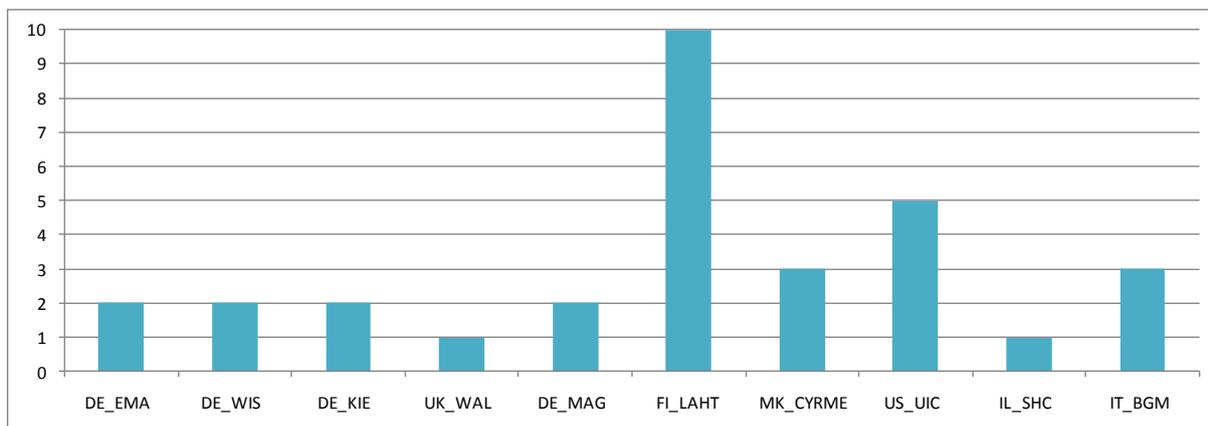
Note: Ten universities answered the question 'From your main University website how many 'clicks' are needed to get to your entrepreneurship support activities?'

Incentives and rewards for professors

45.   Professors can be crucial for motivation and skills development, that is, instilling ideas for entrepreneurship. Professors also are very often the ones who hold knowledge and research results that contain entrepreneurial opportunities. These two features can be interlinked, but they do not have to be. Ideally, there are incentives and rewards in place for both the 'motivator' and the 'creator' professors.

46.   From the 15 universities, who answered the question 'Are the professors, who act as mentors for would-be-entrepreneurs and/or are sharing research results to this end, rewarded by your University?', only three have incentives and rewards currently in place, whereas in more than half of the universities efforts are underway to introduce these in the next two years. In two-third of the universities, private sector experience matters for recruitment.

47.   There are advantages and disadvantages to privileging professors and researchers in the commercialisation of research; this discussion is beyond the scope of this note. The premise here is that ownership over research results can be a very powerful incentive for professors to commercialise research result either on their own or in collaboration and partnership with peers and students. In the reviewed sample ownership is mainly with universities. From the commercialisation of research results professors and researchers get on average 47%.[5]

Financing and development of human resources

48.   Entrepreneurship support requires additional financing and human resources from universities. Financing can come either from grants, donations or own revenues. Human resources for entrepreneurship support can either be internally or recruited and developed.

49.   Box 2 presents criteria of good practice.

Box 2. Criteria of good practice in financing and human resources development

A minimum long-term financing of staff costs and overheads for graduate entrepreneurship is agreed as part of the university's budget.

1.   Self-sufficiency of university internal entrepreneurship support is a goal.

2.   Human resource development for entrepreneurship educators and staff involved in entrepreneurship start-up support is in place.

Source : OECD 2010b

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50.   The universities were asked to answer three questions concerning their financing and human resource development.

Financing

51.   The reviewed universities use government schemes, private sector funding or a combination of both to sustain and expand their entrepreneurship support (Figure 3).

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[5]   Nine universities responded to the question "If research results are commercialised what share does the professor/researcher get?". Shares range from 15% (Shamoon College of Engineering, Israel) to 75% (Universidade Catolica Portuguesa, Portugal).

Figure 3. Sources of financing for university entrepreneurship support
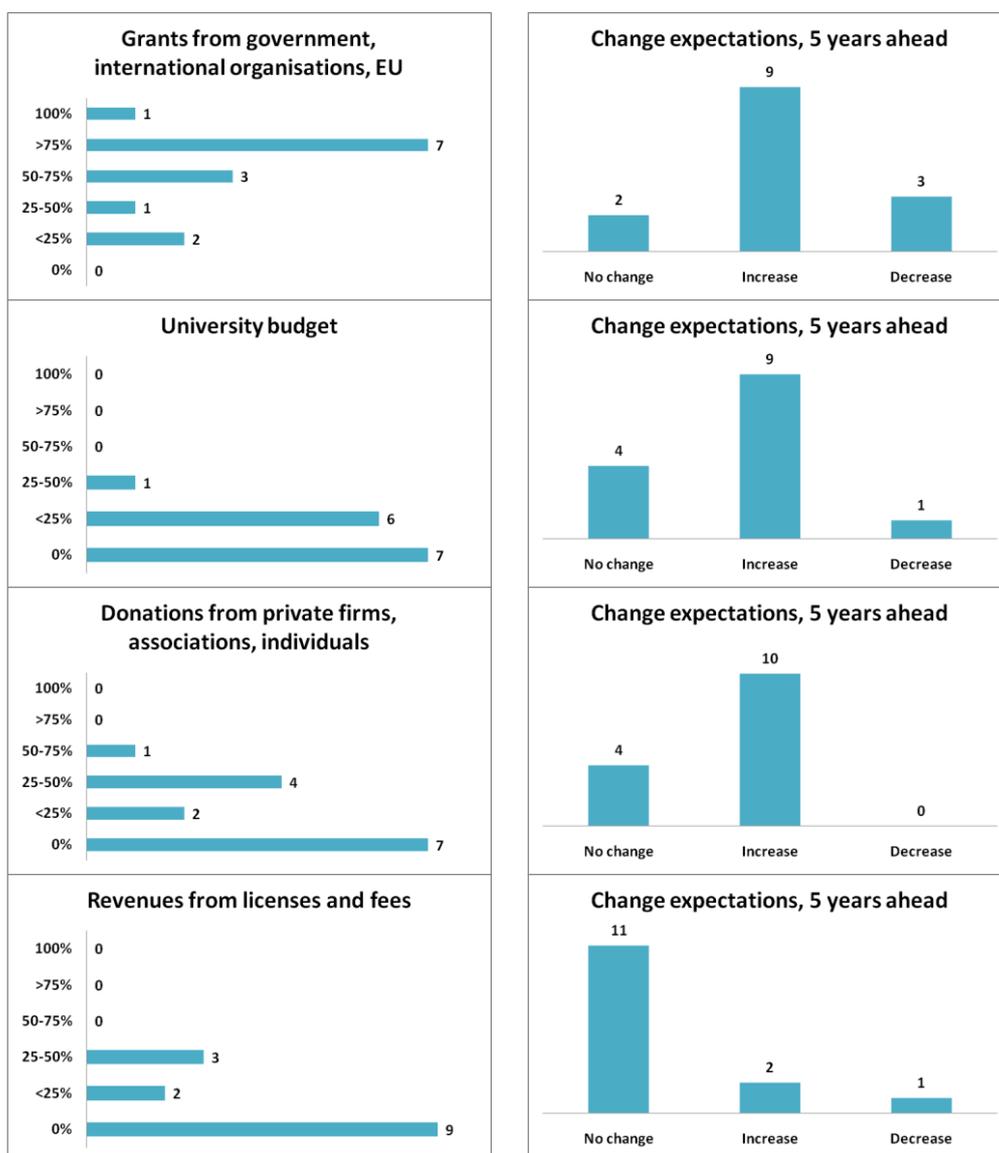
52.	Eleven out of the 16 universities cover more than half of their entrepreneurship support through grants from government, international organisations and the EU. More than half of the universities expect grant funding to increase for the next five years. 13 universities have less one-quarter of their entrepreneurship support activities financed by the university budget, but more than half of the universities are optimistic that university funding would increase over the next half decade. Seven universities have been able to attract donations from private firms, associations and individuals and ten expected an increase. In three universities (University of Illinois at Chicago, EM Lyon Business School, Ilira College), revenues from fees for services and licences on patents cover between 50-75 percent of the entrepreneurship support provision costs. Eleven universities expect no change to this source of financing.

Human resources development

53.	Promoting entrepreneurship through education and providing hands-on support for business start-ups requires skills and competencies which are not necessarily readily available within today's universities.

Given that business formation requires skills that academic scientists typically do not possess and they involve activities that are somewhat alien to their culture (e.g., assessing market demand for their invention), universities could partner with and reward business school faculty to train and mentor potential academic entrepreneurs. Hence, there is a clear need to develop and promote the right set of skills and amongst staff as well as a broad appreciation of entrepreneurship. In all reviewed universities, except for two (Universidade Catolica Portuguesa, IMC University in Austria), entrepreneurship support staff has been offered training over the past two years.

Start-up support infrastructure

54.   More and more universities in OECD countries provide direct support for start-ups through mentoring, grants, and incubation facilities. Start-up support is providing a helping hand in business start-up without taking away the 'do it on your own'. It is all about making, entrepreneurship support systems accessible and attractive for future entrepreneurs, and about rectifying market and system failures in financing and premises. For universities to be effective, partnerships with entrepreneurship support actors in the territory and beyond are relevant.

55.   Box 3 presents criteria of good practice in start-up support infrastructure.

Box 3. Criteria of good practice in start-up support infrastructure

An entrepreneurship dedicated structure within the university (chair, department, support centre) is in place, which closely collaborates, co-ordinates and integrates faculty-internal entrepreneurship support and ensures viable cross-faculty collaboration.

1.   Facilities for business incubation either exist on the campus or assistance is offered to gain access to external facilities.

2.   There is close co-operation and referral between university-internal and external business start-up and entrepreneurship support organisations; roles are clearly defined.

Source : OECD 2010b

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56.   The universities were asked to answer three questions concerning their entrepreneurship support infrastructure and their partnering with business support actors in the territory.

57.   Except for two, all reviewed universities have currently dedicated permanent structures on campus, such as for example entrepreneurship centres, that provide start-up support. Twelve universities have their own business incubation facilities and two were in the process of establishing them. Incubation facilities are available mainly for students, professors, researchers and alumni, and less often for students and alumni from other universities (Figure 4).

Figure 4. Access to campus incubation facilities
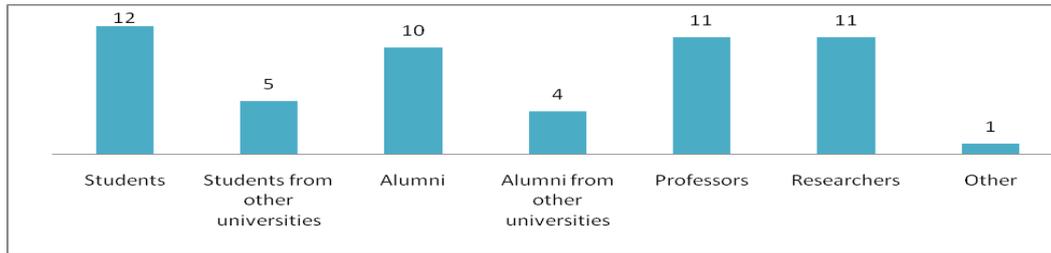
Note: 13 universities answered the question: 'Who can use the incubation facilities?'. Multiple answers were possible.

58.   University entrepreneurship support has its limits. It prepares students for future intrapreneurial and entrepreneurial careers and promotes the commercialisation of research results. Close co-operation and integration of university internal and external support infrastructure and services is an important success factor. Getting in private actors contributing to university entrepreneurship support as early as possible is crucial in exposing would-be-entrepreneurs and support providers to the 'world of business'.

59.   A close co-operation and referral between university internal and external start-up support organisations can be stated for all of the reviewed universities. Some relied more on personal contacts then on institutionalised relationships. Figure 5 shows Shamoon College of Engineering (IL_SHC) and Øresund Entrepreneurship (DK_ORE) as examples of organisations that rely more on personal contacts, whereas the University of Illinois at Chicago (US_UIC) and EM Lyon Business School (FR_EML) predominantly work on the basis of institutionalised ties.

Figure 5. Partnering and strategic networking of universities
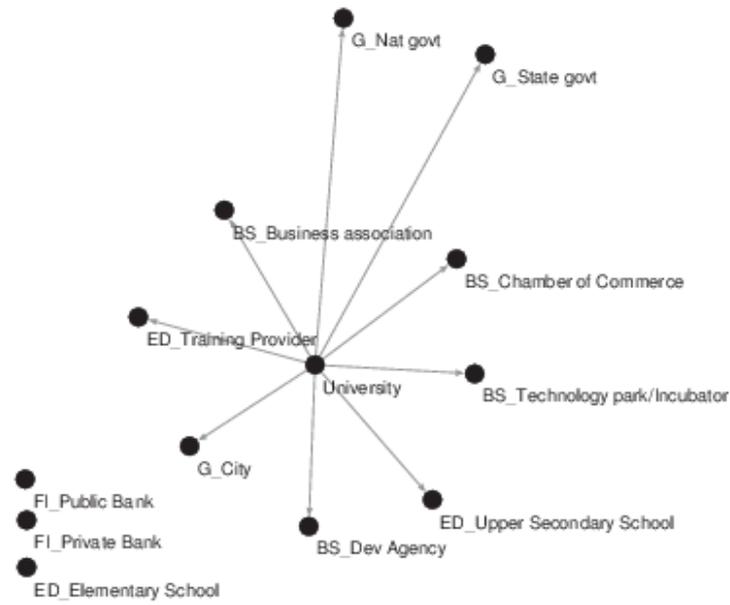
Figure 5 (continued).   Partnering and strategic networking of universities
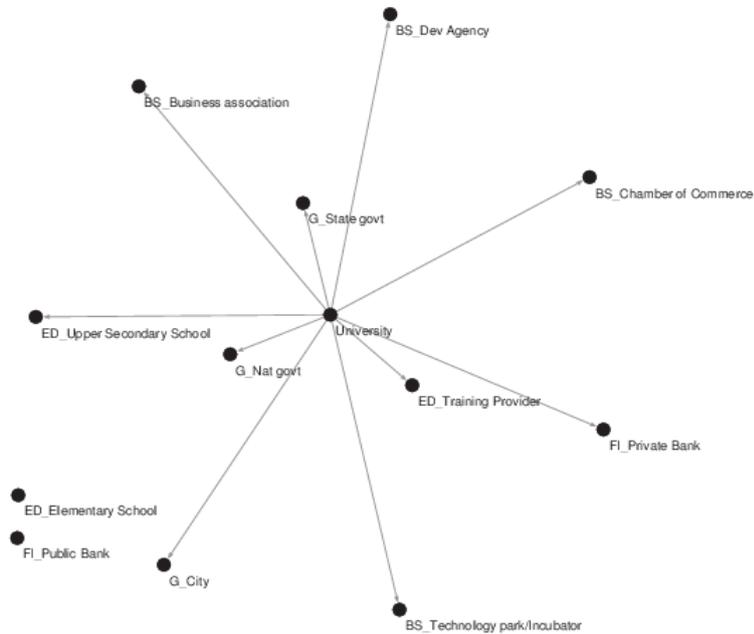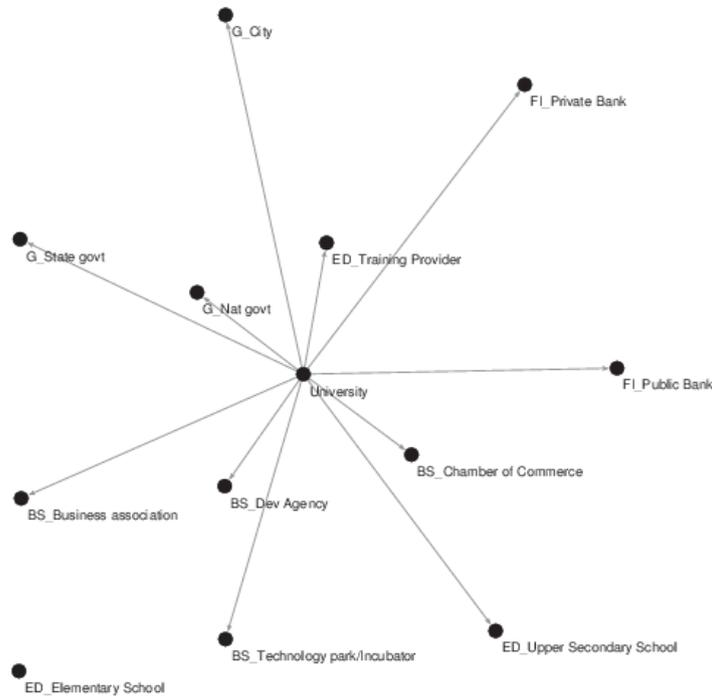
Entrepreneurship education

60.   Ideally, all students have access to a wide range of entrepreneurial learning opportunities inside and outside their courses of study. Increasing take-up rates will require both expanding and tailoring the offer in entrepreneurship education. The goal is to develop entrepreneurial graduates who are self-confident, capable, experienced and motivated to think and act entrepreneurially. With suites of courses, the offer in entrepreneurship education can be expanded and tailored to different student interests and needs.

61.   Evidence suggests that widely communication and advertising of the entrepreneurship education, using posters, guerrilla marketing techniques, and the university's website yields success in terms of higher numbers of take-up and a broader, multi-disciplinary range of students.

62.   Box 4 presents criteria of good practice in entrepreneurship education.

Box 4. Criteria of good practice in entrepreneurship education

Entrepreneurship education is progressively integrated into curricula and the use of entrepreneurial pedagogies is advocated across faculties.

1.   The entrepreneurship education offer is widely communicated, and measures are undertaken to increase the rate and capacity of take-up.

2.   A suite of courses exists, which uses creative teaching methods and is tailored to the needs of undergraduate, graduate and post-graduate students.

3.   The suite of courses has a differentiated offer that covers the pre-start-up phase, the start-up phase and the growth phase. For certain courses active recruitment is practiced.

4.   Out-reach to Alumni, business support organisations and firms is a key component of entrepreneurship education.

5.   Results of entrepreneurship research are integrated into entrepreneurship education messages.

Source : OECD 2010b.

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63.   The universities were asked eight questions concerning their current practice in entrepreneurship education, including take-up rates, take-in channels, teaching methods and teachers.

64.   All of the reviewed universities have seen an increase in the take-up rate of entrepreneurship education in the period 2008-2010 and the majority believes that this is a stable trend.

65.   For the majority of reviewed universities student demand for entrepreneurship courses has been higher than advertisement through posters and flyers, websites and mailing lists (Figure 6). Only half of the universities use social media, such as Facebook, Twitter, Linked-in, etc., to advertise their entrepreneurship courses that are not faculty or study programme specific (e.g., open courses, open activities, incubation space, etc.).

**Figure 6. Student take-in channels in entrepreneurship education**
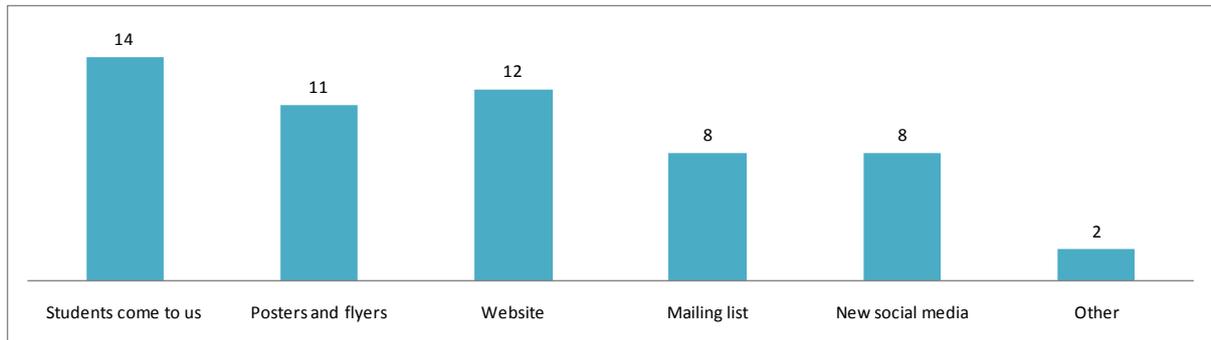
Note: 15 universities answered the question: 'How do you advertise on Campus the entrepreneurship support activities that are not faculty or study programme specific (e.g., open courses, open activities, incubation space, etc.)?'. Multiple answers were possible.

66.	Only three universities do not actively recruite students for certain courses, whereas at present ten universities recruit students for idea contests and business-plan-competitions and scouting, three plan to start in the near future. Selection criteria are motivation, curiosity, appearance, background, study progress, willingness to think and act in an interdisciplinary way.

67.	Business plan preparation and competitions are one of the most used teaching methods in entrepreneurship education (Figure 7). In all reviewed universities, except for one (University of Bergamo), business plan preparation was used, and in most of them it was one of the primarily used teaching methods.

68.	It is interesting to note that 'Business survival', 'Business start-up', and 'Growing your business' assignments were less frequently used.

**Figure 7. Teaching methods in entrepreneurship education**
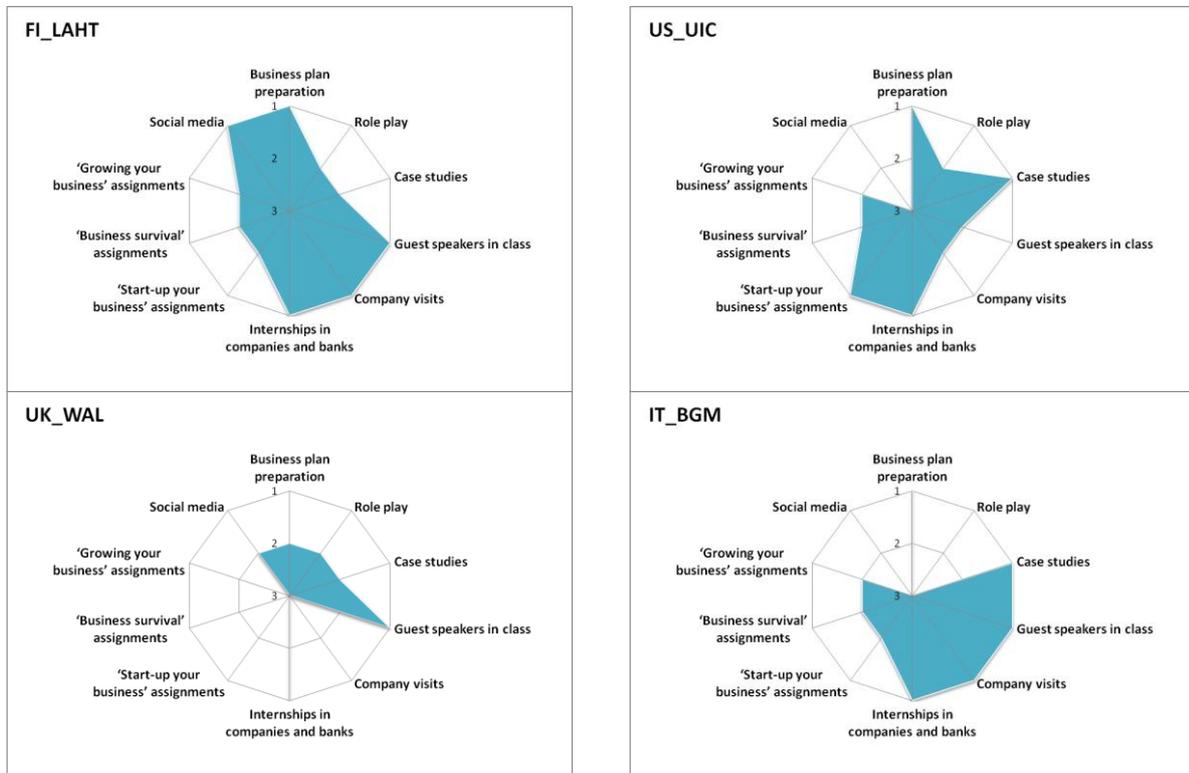
Note: All 16 universities responded to the question 'To what extent are the following teaching methods used in your entrepreneurship courses?'. Respondents were asked to rank ten different teaching methods by using 1 for 'primarily used', 2 for 'used, but not a major component', and 3 for 'not used'.

69.   In the majority of reviewed universities research into entrepreneurship education is underway, and often carried out by single professors, researchers and students. In three universities research is carried out at department level. In most of the cases, research on entrepreneurship education is linked with education practice and people involved in research are also involved in entrepreneurship education.

70.   All universities collaborate with alumni, people from business support organisations, banks venture capitalists, business angels, and entrepreneurs in the design of entrepreneurship courses. Their share in teaching, however, differs. More than half involved 'externals' in less than 50 percent of the course and only in five universities this share has reached 75 percent (Figure 8).

Figure 8. Share of teaching by 'externals'
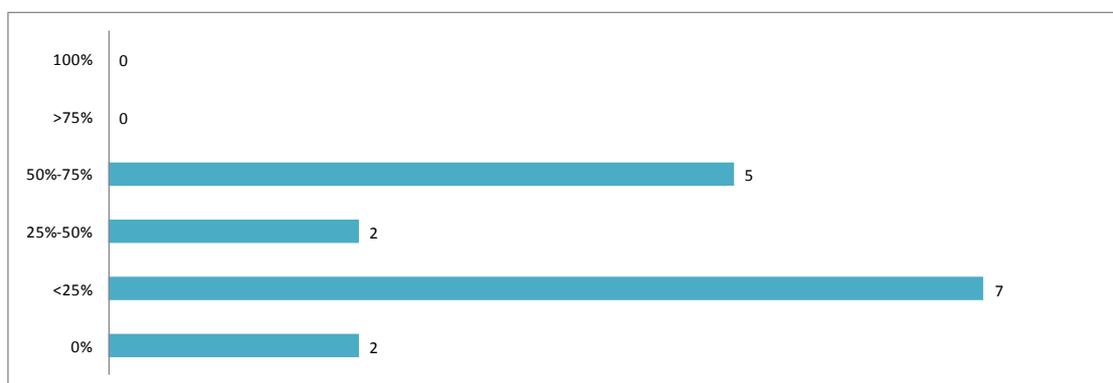
Note: All 16 universities responded to the question 'What is the share of teaching conducted by external teachers (e.g. entrepreneurs, VCs, bankers, etc.) in the course?'. Respondents could choose between the above listed percentage points and classes.

Start-up support

71.   More and more universities in OECD countries provide direct support for start-ups through mentoring, grants, and incubation facilities. Start-up support is providing a helping hand in business start-up without taking away the 'do it on your own'. It is all about making, entrepreneurship support systems accessible and attractive for future entrepreneurs, and about rectifying market and system failures in financing and premises. Support systems for academic entrepreneurship and spin-offs in general include both university internal and external components.

72.   Box 5 presents criteria of good practice in business start-up support provided by universities.

Box 5. Criteria of good practice in business start-up support provided by universities

Entrepreneurship education activities and start-up support are closely integrated.

1.   Team building is actively facilitated by university staff.

2.   Access to private financing is facilitated through networking and dedicated events. Mentoring by professors and entrepreneurs is offered.

3.   Entrepreneurship support in universities is closely integrated into external business support partnerships and networks, and maintains close relationships with firms and Alumni.

Source : OECD 2010b.

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73.   The universities were asked to answer six questions concerning their start-up support provision.

74.   In all universities entrepreneurship education and start-up support are closely integrated. In the majority teambuilding for business start-up is facilitated, in half of the cases by individual professors and in the other half by the entrepreneurship centre of the university. Twelve universities maintain regular contacts with venture capitalists and business angels, and two plan to establish these in the near future.

75.   At present 13 universities organise mentoring by entrepreneurs and the remaining three plan to start with this.

76.	Business plan competitions can be an effective platform to increase the linkages between entrepreneurship support provided by universities and business support partnerships and networks in a territory and the wider economic context. The majority of reviewed universities participate in business plan competitions and one (the Ss. Cyril and Methodius University) organises its own.

Figure 9. Business plan competitions
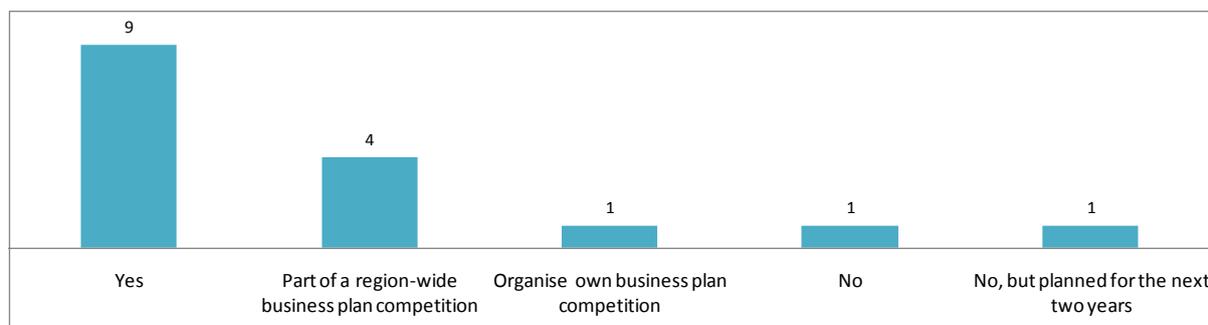
Note: All 16 universities responded to the question 'Does your University participate in business plan competitions'.

Evaluation

77.	Demonstrating the achievements of entrepreneurship support is difficult, with the co-existence of tangible (e.g., number of spin-offs) and intangible outcomes, especially of entrepreneurship education being a key challenge.

78.	Box 6 presents criteria of good practice in university entrepreneurship support evaluation.

Box 6. Criteria of good practice in evaluation university entrepreneurship support

1.	Regular stock-taking and performance checking of technology transfer and entrepreneurship support practice is undertaken.

2.	Evaluation of entrepreneurship education and start-up support activities is formalised and includes immediate (e.g., post-course), mid-term (e.g., graduation), and long-term (e.g., alumni and post-start-up) monitoring of the impact.

Source : OECD 2010b.

79.	Fourteen universities regularly evaluate their entrepreneurship education offer. Out of these, twelve evaluate immediately after the course, two shortly before graduation and only one university (University of Bergamo) traces alumni on the outcomes of entrepreneurship education.

80.	The questionnaire contained no questions to measure the presence of regular stock-taking and performance checking of technology transfer and start-up support.

3. Key issues for policy recommendations and further investigation

81.	The review of findings from LEED work on university entrepreneurship to date, the interviews with entrepreneurship education experts and the university survey, points to the following key policy

recommendations. Further investigation is required into how best to promote the adoption of these principles in university entrepreneurship programmes.

Top-management support for the entrepreneurial mission

82.   Universities may not fully realise their entrepreneurial potentials, if promoting entrepreneurship only falls into their 'third mission' with no or weak links to the core missions of teaching and research and a lack of incentives and rewards for professors and researchers, who act as mentors for would-be-entrepreneurs and are sharing research results to this end. Moreover internal administrative barriers and a lack of incentives may actually impede students, researchers, professors and administrators to think and act entrepreneurial, and efforts to develop entrepreneurship skills support may not be fully effective because of a missing interface with the local economy's wider entrepreneurship support system. Hence, there is a need for top-management support to create synergies between education, research and entrepreneurship and to establish a functional incentives and rewards system that reaches professors and researchers, administrative personnel or universities as well as students.

Making strategic choices in positioning and partnership working in university entrepreneurship support

83.   Support systems for academic entrepreneurship and spin-offs in general include both university internal and external actors. The aim should be to develop a shared and well-communicated vision and to implement a joint strategy to promote academic entrepreneurship. A concerted approach is needed to take stock of the range of activities, the people behind it and the resources devoted, to identify areas of overlap as well as potentials for synergies and untapped resources. Decisions about resource allocation should be driven by strategic choices that the university makes regarding the areas of technology and the various modes of transfer – licensing, sponsored research, start-ups, and other mechanisms of technology transfer that are focused more directly on stimulating economic and regional development, such as incubators and science parks. Licensing and sponsored research can generate a stream of revenue, whereas investment in spin-offs and start-ups could yield returns in the long run.

Establishing a functional entrepreneurship-related incentive and reward system

84.   In promoting entrepreneurship, universities themselves need to be entrepreneurial and innovative. Introducing an entrepreneurship-related incentive and reward system requires a pro-entrepreneurship positioning of the university leadership and its administration can facilitate this. Monitoring and evaluating the impact of entrepreneurship support on entrepreneurial behaviour of graduates and business activities of members of the university community will help to advocate for the introduction of a reward and incentives system. At present, the calculation of universities' budgets largely depends upon the number of students, the degree of scientific excellence and other aspects, all not directly related to entrepreneurship. Incentives and rewards for those involved in entrepreneurship support are, however, of crucial importance for a university to succeed in its entrepreneurial mission. Empirical evidence from the US (Phan 2010, submitted) shows that shifting the royalty distribution formula in favour of faculty members (*e.g.*, allowing faculty members to retain 75% of the revenue, instead of 33% of the revenue) would elicit more invention disclosures and so lead to greater efficiency in technology transfer and entrepreneurship. Time can be an important factor for professors, which should be taken into account when designing incentives and rewards. A more controversial recommendation is to modify promotion and tenure guidelines by giving a more positive weight on entrepreneurship in such decisions. It touches the very core of what it means to be an academic researcher and therefore impinges on issues of norms and shared values.

Improving university internal information flows

85.	Improving information flows between academics and the university administration matters particularly in terms of motivation for entrepreneurship and time needed to comply with regulations. Technology transfer officers and university administrators share an interest in promoting technology commercialisation and therefore should devote more effort to eliciting invention disclosures. While part of the problem with poor disclosure outcomes has to do with faculty incentives (publications are usually regarded as mutually exclusive to patents) a greater part has to do with the lack of formal and detailed (or varied) communication channels between the university laboratories and the entrepreneurship and technology transfer units. Maintaining a viable communication bandwidth is resource intensive (in time) for the researcher. The filing of reports and giving seminars to potential technology licensees and entrepreneurs is usually a strong deterrent to faculty, even if they are interested in profiting from their discoveries.

Entrepreneurship education - taking account of research results and real-business needs

86.	Entrepreneurship education should be organised in a dynamic way, taking into account research and real-business needs. To ensure this, regular performance assessment exercises are useful, including regular feedback sessions with people from the business community, alumni entrepreneurs and students and to track and survey alumni with entrepreneurial careers.

87.	It is important that entrepreneurship education is taken serious by both students and teachers (which does not mean it cannot be fun), but it should also help to fulfil the academic requirements for both sides. It is important to build and expand linkages between research and teaching, for example by getting doctoral students to work on an entrepreneurship education related research topic. Inviting international visiting entrepreneurship professors on a regular basis strengthen the research base, the teaching students, and training 'trainers' efforts.

88.	Across OECD countries, more and more universities follow the approach of assigning a member of the top-level university management to take over responsibility for the development of entrepreneurship education and start-up support, including goal and policy definition, degree of curricular integration, resources, dedicated research and evaluation, enhances the role entrepreneurship in relation to teaching and research. To create a broad basis for this the establishment of a 'strategic' committee, including all the key people acting within the university has proven to be useful.

89.	Although entrepreneurship education might be particularly linked to the entrepreneurial ecosystem and its opportunities of a given local economy, there is a clear case for economies of scale. A joint resource centre, providing an on-line information system of pedagogical practices freely accessible for teachers, researchers, students and other organisations involved in entrepreneurship education, could greatly contribute to the development of a more entrepreneurial learning environment. Its task could be to produce innovative and pertinent teaching material (case studies, videos, games, course contents, syllabi, etc.), and to organise regular events, also using on-line services, targeted at different and mixed audiences to enhance communication on, and exchange of, new and innovative approaches in entrepreneurship education.

Investing in students…

90.	Students can add immense value if given the opportunity and support to act. However, often they are considered beneficiaries and not partners in, and creators of entrepreneurship support. That the latter actually brings success, demonstrate examples of a student run entrepreneurship clubs, such as CUTEC, Cambridge University Technology and Enterprise Club, running a 'Start-Up Cafe' on campus, and the

introduction of paid student entrepreneurship interns, which work across campus to promote and support entrepreneurship actions and to carry out applied entrepreneurship research. Social media, such as Facebook and Twitter attract students and allow for a wide dissemination of the message. Collaboration amongst different local universities and other higher education institutions should be promoted to allow student participation.

91.   Entrepreneurship is closely connected with development and equal opportunities. It is also about finding 'sustainable solutions to overcoming the injustices of poverty' (World Economic Forum, 2009). Shailendra Vyakarnam from the Centre for Entrepreneurial Learning at the University of Cambridge Entrepreneurship, who is the author of this quote said in an interview with a Malaysian radio station in 2009 that entrepreneurship education is not learning about entrepreneurship, it is getting the skills to try out entrepreneurship. The multifaceted phenomenon of entrepreneurship requires something else than simple textbooks and an ordinary classroom setting. An 'entrepreneurial' pedagogy seeks to enhance entrepreneurial capacities and capabilities amongst students by giving them more autonomy and responsibilities in the learning process through experiments and reflexive learning and a greater application of collective and co-operative learning.

…and in teachers

92.   Teachers are important. Their knowledge, experience and attitude with regard to entrepreneurship and the entrepreneur as a person matter. Not always are professors and lecturers the best teachers when it comes to business matters. Entrepreneurship support in universities, in particular entrepreneurship education, is demanding reinforcement and development of existing human resources and employing new staff. Working with entrepreneurs, chief executives, bankers, venture capitalists and business angels can help overcoming bottlenecks. On a regular basis organised entrepreneurship educator development programmes and workshops, careers adviser awareness programmes, and faculty deans' and directors' development programmes and workshops promote a university's entrepreneurial spirit. Well-publicised yearly awards on the 'Best Entrepreneurship Innovative Pedagogy' and the 'Best Entrepreneurship Professor' for students to vote is a soft incentive that can stimulate more involvement by professors and teaching staff in entrepreneurship education and also raise the awareness of entrepreneurship amongst students. Reducing the teaching load for those involved in 'strategic' entrepreneurship activities, such as entrepreneurship ambassadors and mentors should be considered.

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ANNEXES

Annex A. Basic information on the surveyed universities

IMC University, Austria	AT_IMC
Number of students (2010/11)	1 169
Number of Faculties	3
Number of academic staff (2009)	300
Number of administrative staff (2009)	136
Website	http://www.fh-krems.ac.at/

Lahti University of Applied Sciences, Finland	FI_LAHT
Number of students (2009/10)	4 700
Number of Faculties	7
Number of academic staff (2010)	250
Annual budget (2009)	EUR 12 million
Website	http://www.lamk.fi

EM Lyon Business School, France	FR_EML
Number of students (2009/10)	3 200
Number of academic staff (2009)	110
Number of administrative staff (2009)	240
Annual budget (2009)	EUR 50 million
Website	http://www.em-lyon.com/

Ernst-Moritz-Arndt-University Greifswald, Germany	DE_EMA
Number of students (2009/10)	12 304
Number of Faculties	6
Number of academic staff (2008)	2 550
Number of administrative staff (2009)	2 857
Website	www.uni-greifswald.de

Wismar University of Applied Sciences; Technology, Business and Design, Germany	DE_WIS
Number of students (2009/10)	5 896
Number of graduates (2008/09)	858
Number of Faculties	3
Number of academic staff (2009)	212
Number of administrative staff (2009)	233
Annual budget (2009)	EUR 23.5 million
Website	http://www.hs-wismar.de

Christian-Albrechts-Universität zu Kiel (University of Kiel), Germany	DE_KIE
Number of students (2009/10)	22 825
Number of graduates (2008/09)	2 335
Number of Faculties	9
Number of academic staff (2009)	1 491
Number of administrative staff (2009)	1 032
Annual budget (2009)	EUR 220 million
Website	http://www.uni-kiel.de

University of Magdeburg, Germany		DE_MAG
Number of students (2009/10)	13 770	
Number of graduates (2008/09)	975	
Number of Faculties	9	
Number of academic staff (2009)	1 238	
Number of administrative staff (2009)	857	
Annual budget (2009)	EUR 162.6 million	
Website	http://www.uni-magdeburg.de/	

Shamoon College of Engineering, Israel		IL_SHC
Number of students (2009/10)	more than 4 000	
Number of Faculties	6	
Website	http://www.sce.ac.il	

University of Bergamo, Italy		
Number of students (2009/10)	15 415	
Number of Faculties	6	
Number of academic staff (2009)	339	
Number of administrative staff (2009)	231	
Website	http://www.unibg.it	

Ilira College Universiteti Mbretëror ILIRIA, Kosovo		KS_ICDP
Number of students (2009/10)	1 500	
Number of programmes	6 Bachelors, 1 Master	
Website	http://www.uiliria.org/cms/	

Ss. Cyril and Methodius University, Macedonia		MK_CYRME
Number of students (2009/10)	50 000	
Number of doctoral students (since 1949)	2700	
Number of foreign students (2010)	700	
Number of Faculties	21 + 5 research institutes	
Number of academic staff (2010)	2700	
Website	http://www.ukim.edu.mk	

Academy of Economic Studies, Moldova		MD_AES
Number of students (2006)	15 000	
Number of graduates (as of 1992)	18 000	
Number of doctoral students (2006)	290	
Number of foreign students (2006)	150	
Number of Faculties	6	
Number of academic staff (2010)	500	
Website	http://www.ase.md	

PT_UCP Universidade Catolica Portuguesa, Portugal		PT_UCP
Number of students (2008/09)	11 854	
Number of Faculties	18	
Number of academic staff (2009)	1 169	
Number of administrative staff (2009)	466	
Website	http://www.ucp.pt	

University of Wales, UK		UK_WAL
Number of students (2009/10)	80 000	
Number of graduates (2009)	22 508	
Number of Faculties	4 + 2 Research Centres (Centre for Advanced Welsh & Celtic Studies and Global Academy)	
Number of academic staff (2009)	47	

Number of administrative staff (2009)	68
Annual budget (2009)	GBP 12 million
Website	http://www.wales.ac.uk

University of Illinois at Chicago, US	**US_UIC**
Number of students (2009/10)	27 309
Number of graduates (2010)	6 343
Number of doctoral students (2010)	316
Number of foreign students (2010)	730
Number of Faculties	15
Number of academic staff (2010)	2 574
Number of administrative staff (2010)	3 669
Annual budget (2009)	USD 1.7 billion
Website	http://www.uic.edu/uic/

Øresund Entrepreneurship, Denmark and Sweden	**DK_ORE**
Øresund Entrepreneurship serves nine universities. Five in Denmark – University of Copenhagen, Copenhagen Business School, Technical University of Denmark, The Royal Danish Academy of Fine Arts, School of Architecture, and Roskilde University – and four universities in Sweden – Lund University, Malmö University, Kristianstad University College and the Swedish University of Agricultural Sciences, Alnarp.	
Number of students (2009/10)	approximately 150 000
Annual budget (2009)	EUR 500 000
Website	http://www.oresund.org/entrepreneurship

Annex B. Analysed questions

STRATEGY

Q1 What are for your University key objectives of supporting entrepreneurship? [Please assign: 1, for primary objective; 2, for secondary objective, i.e. important, but not top objective; 3, not a key objective	
❑	To generate entrepreneurial attitudes, behaviour and skills amongst students
❑	To promote business start-ups by students
❑	To commercialise research outputs
❑	To promote technology intensive business start-ups
❑	To promote business start-ups that will create jobs
❑	To generate revenues for the University
❑	Other, please specify

Q2 Can your University be a shareholder in a spin-off company?	
❑	Yes
❑	No
❑	No, but planned
❑	Comment

Q3 Does your University have a written strategic document?	
❑	Yes
❑	No
❑	Comment
Is entrepreneurship support mentioned?	
❑	Yes
❑	No

Q4 In your annual report 2009 is there a section on the activities and results of entrepreneurship support?	
❑	Yes
❑	No
❑	Don't have an annual report 2009

Q5 From your main University website how many 'clicks' are needed to get to your entrepreneurship support activities?	
❑	_____

Q6 Are the professors, who act as mentors for would-be-entrepreneurs, and/or are sharing research results to this end rewarded by your University?	
❑	Yes
❑	No
❑	No, but planned for the next 2 years.

Q7 When recruiting professors and researchers is experience in the private sector, either as business owner or business manager taken into consideration?	
❑	Yes
❑	No
❑	No, but planned for the next 2 years.

Q8 If research results are commercialised what share does the professor/researcher get?	
❑	_____%
❑	Comment

RESOURCES

Q1 What are the main sources for financing your entrepreneurship support activities?	
Grants by government, EU, international organisations	❑ 0% ❑ <25%❑ 25-50% ❑50-75%❑>75% ❑ 100%
Donations by private firms, associations, individuals	❑ 0% ❑ <25%❑ 25-50% ❑50-75%❑>75% ❑ 100%
Revenues from student fees, fees for services, licenses and patents	❑ 0% ❑ <25%❑ 25-50% ❑50-75%❑>75% ❑ 100%
Annual budget of your organisation (may mainly apply for universities and larger organisations where entrepreneurship support is one of many portfolios)	❑ 0% ❑ <25%❑ 25-50% ❑50-75%❑>75% ❑ 100%
Other	❑ 0% ❑ <25%❑ 25-50% ❑50-75%❑>75% ❑ 100%

Q2 For the next five years what changes do you expect or plan for in financing the entrepreneurship support activities?	
Grants by government, EU, international organisations	❑ no change, ❑ increase, ❑ decrease
Donations by private firms, associations, individuals	❑ no change, ❑ increase, ❑ decrease
Revenues from student fees, fees for services, licenses and patents	❑ no change, ❑ increase, ❑ decrease
Annual budget of your organisation (may mainly apply for universities and larger organisations where entrepreneurship support is one of many portfolios)	❑ no change, ❑ increase, ❑ decrease
Other	❑ no change, ❑ increase, ❑ decrease

Q3 Has staff involved in entrepreneurship education and start-up support activities been offered formal training during the last two years?	
❑	Yes
❑	No

START-UP SUPPORT INFRASTRUCTURE

Q1 Is there a permanent structure at your University that supports entrepreneurship (i.e., unit, 'entrepreneurship centre', etc)?	
❑	Yes
❑	No
❑	No, but planned for the next two years

Q2 Does your University have business incubation facilities (i.e., free or subsidised rental of office space and access to laboratory space) on Campus?	
❑	Yes
❑	No
❑	No, but planned for the next two years
Who can use these facilities? [multiple answers]	
❑	Students
❑	Students from other universities
❑	Your Alumni
❑	Alumni from other universities
❑	Professors
❑	Researchers
❑	Other

Q3 Does your University refer future entrepreneurs to other organisations in the region that are specialised in providing start-up support for certain technologies or economic sectors?	
❑	Yes, to other universities
❑	Yes, to business development organisations
❑	No

ENTREPRENEURSHIP EDUCATION

Q1 Has the take-up rate of entrepreneurship education activities increased or decreased between 2008-2010?

❑	Increased
❑	Decreased

Would you say this is a permanent trend?

❑	Yes
❑	No

Q2 How do you advertise on Campus the entrepreneurship support activities that are not faculty or study programme specific (e.g., open courses, open activities, incubation space, etc.)?

❑	Students come to us
❑	Posters and flyers
❑	Website
❑	Mailing list
❑	New social media (Facebook, Twitter, etc.)
❑	Other

Q3 Do you actively recruit students for entrepreneurship activities (e.g. entrepreneurship courses, scouting, etc.)

❑	Yes
❑	No
❑	No, but planned for next academic year

Q4 In which format are your entrepreneurship education activities offered?

❑	Courses are open for all faculties
❑	Mandatory courses with credits
❑	Electives with credits
❑	Open activities (e.g., brown bag sessions, enterprise fridays etc.)
❑	Separate courses for Bachelor students
❑	Separate courses for Master students
❑	Separate courses for Phd and postdoc researchers
❑	Other

Q5 To what extent are the following teaching methods currently used in your entrepreneurship courses: Please assign:
1, primarily used
2, used, but not a major component
3, not used

❑❑❑	Business plan preparation
❑❑❑	Role play
❑❑❑	Case studies
❑❑❑	Guest speakers in class
❑❑❑	Company visits
❑❑❑	Internships in companies and banks
❑❑❑	'Start-up your business' assignments
❑❑❑	'Business survival' assignments
❑❑❑	'Growing your business' assignments
❑❑❑	Social media (Bloggs, Facebook, Twitter, etc.)
❑❑❑	Other

Q6 Is there research on teaching entrepreneurship, skills for entrepreneurship, etc. carried out at your University?

❑	Yes, by individual professors, researchers and students
❑	Yes, by a department
❑	No
❑	No, but planned for next two years

Is the unit that is carrying our research on entrepreneurship involved in the entrepreneurship courses?

❑ Yes
❑ No

Q7 Do you collaborate with Alumni, business organisations, firms, banks, venture capitalists, etc. in the design of your entrepreneurship courses	
❑	Yes
❑	No

Q8 Do Alumni, people from business organisations, firms, banks, venture capitalists, etc. teach in your entrepreneurship courses?	
❑	Yes
❑	No
What is their share of teaching in the course?	
❑ 0% ❑ <25% ❑ 25-50% ❑50-75% ❑>75% ❑ 100%	

START-UP SUPPORT

Q1 Does your University refer future entrepreneurs to other organisations in the region that are specialised in providing start-up support for certain technologies or economic sectors?	
❑	Yes, to other universities
❑	Yes, to business development organisations
❑	No

Q2 Are staff who are involved in business start-up support activities (e.g., entrepreneurship centre, incubation facilities, etc.) also involved in the entrepreneurship education activities?	
❑	Yes
❑	No

Q3 Is teambuilding for business start-up facilitated by university staff?	
❑	Yes, mainly through professors
❑	Yes, mainly through the unit in charge of entrepreneurship support
❑	No

Q4 Does your University maintain regular contacts with banks, venture capitalists and business angels?	
❑	Yes
❑	No
❑	No, but planned for next two years

Q5 Is mentoring by entrepreneurs organised?	
❑	Yes
❑	No
❑	No, but planned for next two years

Q6 Does your University participate in business plan competitions?	
❑	Yes
❑	Yes, we are part of a region wide business plan competition
❑	Yes, we organise our own business plan competition
❑	No
❑	No, but planned for next two years

EVALUATION

Q1 Is there formal evaluation of the entrepreneurship courses?	
❑	Yes
❑	No
❑	No, but planned for next academic year

Q5 : How is evaluation organised?	
❑	Immediately after the course
❑	Shortly before graduation
❑	Post graduation (Alumni tracer)
❑	Other