# INTRODUCTION TO HEINNOVATE
# AND ITS SEVEN DIMENSIONS

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# 1. LEADERSHIP AND GOVERNANCE

**Criteria/statements**

*1.1 Entrepreneurship is a major part of the university strategy*

For a broad acceptance of the entrepreneurial university strategy – from top management, senior level of the institution, to all other stakeholders both within and outside the higher education institution – a **common understanding of the meaning and relevance of entrepreneurship to the university will need to be developed**. The most difficult barriers to overcome are likely to be intellectual or ideological beliefs of academic staff, which can result from misperceptions and myths about the meanings, values and purposes of entrepreneurship. **Effective leadership** will (i) **engage** different viewpoints, (i) **provide alternative interpretations** that have resonance and meaning for teaching and research, especially across the different contexts of a university, and (iii) **fit all of this into a shared vision of the future, and a strategy for organisational and individual development**.

On their own a strategy, however, does not create an entrepreneurial culture. A **strategy needs to be backed up by examples, actions, and role models**. People that initiate activities that exemplify the entrepreneurial university strategy, such as, for example interdisciplinary education activities, which allows students from different faculties/departments to learn, create, experiment, test and apply new technologies, should be publicly recognised and awarded.

**A truly entrepreneurial university is perceived as such also by its external stakeholders**. This is a long term iterative process with ups and downs. The involvement of key external stakeholders into the university's governing board is often a starting point.

*1.2 There is commitment at a high level to implementing the entrepreneurial strategy*

For the entrepreneurial strategy to be effective, a **high level of commitment is needed**. Responsibility for strategy implementation is typically held by specifically appointed entrepreneurship champions. These can be at senior management level, within faculties, departments and other units. Initially this may be a part-time role and over-time moving towards a small team of dedicated individuals and include external champions.

*1.3 The higher education institution has a model for coordinating and integrating entrepreneurial activities at all levels across the organisation*

There are **many different models for co-ordinating** the entrepreneurial activities; they can be grouped in three general types.

1. Dedicated unit with close links to senior management, often part of the rector's or the vice rector's office

2. Specific professors, who have entrepreneurship in their title or a chair on or related to entrepreneurship

3. Entrepreneurship Centre, which facilitates access to and increases visibility of the entrepreneurship promotion activities

It is important that the **coordination model**, for which the university opts, **takes into account existing relationships**, co-ordinate across departments, faculties and other units, and **avoid the duplication** of work both inside the university and within the surrounding entrepreneurial ecosystem.

*1.4 The faculties and units have autonomy to act*

**Maximising autonomy and individual ownership of initiatives** is crucial for an institution-wide buy-in to the entrepreneurial strategy, **whilst ensuring that all initiatives fit under the same strategy umbrella**. Internal autonomy requires, however, a certain degree of autonomy of the university itself.

*1.5 The higher education institution is a driving force for entrepreneurship development in the wider regional, social and community environment*

# 2. ORGANISATIONAL CAPACITY, PEOPLE AND INCENTIVES

**Criteria/statements**

*2.1 The entrepreneurial agenda is supported by a wide variety of funding sources/investment, including investment by external stakeholders*

Having a **multi-source financial base** is for many universities important for future development. A first step is the identification of different funding sources, taking into account when and for how long available these sources will be available. A wide variety of funding and investment sources will include both external and internal sources (Table 1).

**Table 1.    Examples of external and internal funding sources**

| Examples of external funding sources | Examples of internal funding sources |
|---|---|
| Businesses | Revenues from spin-offs |
| Banks | Licensing and other forms of research commercialisation |
| Development agencies | Revenues from consultancy and other advisory services undertaken by staff |
| Business associations | Overheads from projects funded by external sources |
| Local and regional governments | Student initiatives |
| Research foundations | Sponsorships from alumni |
| International (donor) organisations | |
| Sponsorships from individuals | |

Source: HEInnovate Guidance note on Organisational capacity, incentives and people; online available at www.heinnovate.eu

Following on from that, universities need to **identify areas, which are most attractive to external funders and investors**. Examples include: study programmes and further education initiatives (e.g., MBA programmes), research projects, entrepreneurship chairs, entrepreneurship centres, and, infrastructure projects, such as business incubation facilities, laboratories, science and technology parks, representative buildings and auditoriums etc.

For a strategic and efficient use of external sources of funding, it is important to (i) **continuously engage funders and investors in strategic decisions**, to (ii) **monitor partnerships**, and to (iii) **share** relevant **information within the organisation** to facilitate external communication and avoid duplication of fundraising efforts. Some of this information may be hold by staff involved in externally (co-)funded projects and not available throughout the higher education institution. Here, the establishment of an institution-wide database, which can be fed and read by all staff, can help to share and update information.

When introducing a multiple funding sources approach, it is **important to have monitor mechanisms and control mechanisms** in place that **avoid dependence** upon external investors and their agendas. Also **reporting practices** are important **to demonstrate returns on investment and the overall value added**.

*2.2 The higher education institution has sustainable financing in place to sustain the entrepreneurial university strategy*

Implementing the entrepreneurial university strategy requires **long-term planning and sufficient allocation of resources (personnel & time). Changing existing decentralised funding mechanisms into a coherent, institution-wide financial strategy is essential for institutional development**. At the same time it is likely to raise opposition from faculties, departments and units. Incentives and rewards can help to overcome the opposition and to generate buy-in from.

In particular, **entrepreneurship promotion activities will benefit from financial sustainability** as continuity of resources, especially human resources, can lead to more and better activities, greater outreach and higher take-up rates. At present, many universities in Europe use project-based funding mechanisms for their entrepreneurship support activities. Without a continuous funding basis from the university's regular budget these activities are likely to suffer from short-term or time-bound available of resources, which may cause early termination, high rates of staff turn-over and an increase in administrative tasks related to renewal of funding agreements.

*2.3 There are mechanisms in place for breaking down traditional boundaries and fostering new relationships - bringing internal stakeholders together (staff and students) and building synergies between them*

**All staff and students are important stakeholders of the entrepreneurial university** and ideally **work together to create dialogue and linkages** across the organisation and beyond its borders. However, **traditional boundaries between administration and faculties, faculty and students and disciplines can make this challenging**.

**Organising regular exchange and consultation meetings** between academic and administrative staff and senior management is a good starting point to break down these boundaries through **connecting staff**. Examples are get-togethers with informal updates by different groups, formal information meetings, and thematic retreats. The objectives are (i) to create an environment which promotes awareness of what an entrepreneurial organisation entails, (ii) to enhance exchange and collaboration, and (iii) to identify and address barriers, which will lead, on the long run, to the emergence of an entrepreneurial culture in the university.

**Creating interdisciplinary learning and research environments** is a core task of the entrepreneurial university. **Linking them to issues of local/global societal relevance** – global warming, waste management, demographic change and the use of smart appliances – can promote interdisciplinarity in teaching and research, also linking both. There may be constraints due to higher-tier curriculum

requirements (accreditation), which higher education institutions cannot quickly address. Despite such constraints, **senior management can encourage and reward initiatives** that cross and remove faculty boundaries, for example by promoting cross-faculty summer schools, interdisciplinary research groups, cross-campus idea competition.

**Campus-wide student associations can act as bottom-up means to break down disciplinary boundaries**.

*2.4 The higher education institution is open to recruiting and engaging with qualified individuals with entrepreneurial attitudes, behaviours and experience*

Universities can **foster an entrepreneurial culture also by recruiting staff** that have strong entrepreneurial backgrounds. This can bring in important human resources (knowledge, skills), financial, and social resources (access to networks), which are typically not available inside a university. An entrepreneurial university will also **use entrepreneurial attitudes and experience as criteria in recruitment and promotion processes**. Revising recruitment and promotion criteria in order to ensure entrepreneurial individuals consider higher education as a career option does, however, not mean that achievements in teaching and research should be regarded as less relevant, rather enterprising and entrepreneurial skills and achievements should be considered complementary selection and promotion criteria.

*2.5 The higher education institution invests in staff development to support its entrepreneurial agenda*

**Many aspects of the entrepreneurial university are fast moving** – for example, managing and building resources, involving external stakeholders into leadership and governance, creating and nurturing synergies between teaching, research and societal engagement, entrepreneurship education and managing knowledge exchange partnerships. This **requires new skills and new knowledge which staff may not (sufficiently) have yet**. Therefore training opportunities should be offered to all staff, also **administrative staff**, who can play a **core role in promoting organisational change** should be included in training.

A **formal policy for career development** should be in place, which is **sufficiently resourced** and **provides room for individual goals and objectives**. In-house training is often a good option which is less resource intensive for the university (budget) and individual staff (time). It can also increase collaboration across units. Internships and temporary placements (secondments) in businesses and business support organisations are also possible training opportunities. Furthermore, it will be important for staff to have training with peers from other higher education institutions. Higher education institutions could collaborate to achieve this and seek support from respective government partners.

**Staff and external experts involved in entrepreneurship promotion may have particular training needs**, depending on their professional experience in education, business or research. Often young staff members choose entrepreneurship promotion as an entry into an academic career. Monitoring and meeting their training needs will be very important since they may lack teaching experience. Training opportunities should also be offered to external experts involved in entrepreneurship education and internships supervision.

*2.6 There are clear incentives and rewards for staff who actively support the entrepreneurial strategy*

Incentives and rewards for staff, who contribute to the entrepreneurial strategy are crucial for raising involvement and commitment. Higher education institutions need to identify incentive and rewards that suit their organisation and people best. Incentives and rewards should be available at an individual level as well as for faculties/departments for contributions to the entrepreneurial agenda.

**Table 2.   Examples of incentives and rewards**

| Examples of incentives and rewards targeted at individuals | Examples of incentives and rewards targeted at faculties/departments |
|---|---|
| Awards, for example for "student ambassador of the year", the "most entrepreneurial professor", and the "most enterprising administrative staff" | Study visits to successful ventures, regions and organisations |
| Reduction of teaching hours | Additional monetary resources (budget, personnel, infrastructure) |
| Part-time options for staff starting and running businesses | |
| Development sabbaticals | |
| Utilisation of office and laboratory spaces for entrepreneurial activities | |

Source: HEInnovate Guidance note on Organisational capacity, incentives and people; online available at www.heinnovate.eu

*2.7 The higher education institution gives status and recognition to external stakeholders who contribute to the entrepreneurial strategy*

**It is important to recognise and reward external stakeholders for bringing in human (skills and knowledge), financial, and social (networks) resources which are not (sufficiently) available inside the university**. This could follow a three-stage process, which includes the identification of potential external stakeholders, the evaluation of their contributions against criteria established by the university, and the creation of different kinds of status and awards to recognise and sustain their contribution to the entrepreneurial university. This process is institution-specific, depending upon the overall strategic focus of the university and its financial resources.

## 3. ENTREPRENEURSHIP DEVELOPMENT THROUGH TEACHING AND LEARNING

**Criteria/statements**

*3.1 The higher education institution is structured in such a way that it stimulates and supports the development of entrepreneurial mind-sets and skills*

Practice of **interdisciplinary activities in education and research can be a key success factor** in developing entrepreneurial mind-sets and skills across a university. These activities promote creativity through exposure to and emergence of divergent views, concepts and learning practices. Organising interdisciplinary events is **often challenging because of conflicting learning outcome requirements, incompatible time schedules, and the lack of institutional support**. Establishing academic positions in entrepreneurship can help to overcome these challenges. A widely practiced model – also by some of the case study universities – is to establish a chair or professorship in entrepreneurship.

Whereas the creation of academic positions might boost the number of entrepreneurship education activities, and eventually also research in entrepreneurship, it may not be sufficient for **starting and managing a change process that concerns the wider teaching and learning environments at a university**. The sheer volume of information, which is freely available on the Internet has produced new channels of learning – e.g., academic blogs, You Tube, Facebook, Twitter, TED, and MOOCs (massive open online courses), such as courser, Khan Academy, MIT to name just a few. These new channels of learning question traditional student-teacher relationships. The "flipped classroom" concept is a reaction to this. Students are tasked to 'discover' more of their learning and to use conventional lecturing, formerly delivered personally, from online sources, whereas the role of the teacher changes from being an instructor to a facilitator of learning. Successfully implementing such a change process takes time and **requires from universities steady and sufficient investment of resources in teacher training and the creation of learning environments that allow part-time study arrangements, flexible modes of credit accumulation, a wider range of electives to choose from, mobility between institutions and blended learning opportunities**.

**Students can create a dynamic 'buzz' for entrepreneurship**, as the Aaltoes example shows, where students from three different higher education institutions in Helsinki– Helsinki University of Technology, Helsinki School of Economics and University of Art and Design Helsinki – joined efforts to create an entrepreneurship ecosystem. There are many similar examples at European universities, much more than are internationally known.

**Students**, if given the opportunity and support to act, **can also add immense value to teaching, research and a university's societal engagement activities**. For example, involvement of students in designing the formats and contents of entrepreneurship education activities, and in peer-assessing of learning outcomes, can increase student interest and take-up rates. Other examples of how students can be involved in entrepreneurship promotion are a student-run 'Start-Up Cafe', student-run coffee and canteen facilities, paid student "entrepreneurship interns" that act as student ambassadors and work across campus to promote take up of entrepreneurship promotion activities as well as student-run organisation committees of job fairs and knowledge exchange activities.

*3.2 Staff take an entrepreneurial approach to teaching in all departments, promoting diversity and innovation in teaching and learning*

**Not all educators will initially feel comfortable with entrepreneurial teaching** and the use of pedagogies in which students have a greater say in teaching and more responsibility in learning. It will be important to **provide them with assistance and continuous trainin**g to deliver blended education with traditional academic teaching and new methods such as student-centred, problem-based learning and experience orientated education. Educators need to be **aware of the impact on students of non-traditional pedagogies** (e.g. place-based learning, problem-based learning), and what the **requirements** are for practicing these **in terms of preparation, resources, and approaches to learning outcome assessment**. This requires time, the availability of training and training material as well as guidance on how to assess learning outcomes.

*3.3 Entrepreneurial behaviour is supported throughout the higher education experience; from creating awareness and stimulating ideas through to development and implementation of new ventures*

**Supporting entrepreneurial behaviour** of students and staff can be challenging as it **might not be fully compliant with a university's existing rules and regulations**. Students who start-up a business during their studies may wish to postpone exams or suspend studies for a certain period of time. Staff members, who run a business, might be suspected of utilising university resources. In addition to

establishment of conducive framework conditions (see Pathways for Entrepreneurs), a support framework is needed to create awareness and to stimulate the birth and implementation of business ideas.

### *3.4 The higher education institution validates entrepreneurship learning outcomes*

**Entrepreneurship education activities can have various intended learning outcomes**. It is **important that these match with the specific teaching strategy**. These activities require more 'learning by doing' activities, practice and place-based learning than traditional academic programmes.

### *3.5 Engagement of external stakeholders is a key component of teaching and learning development in an Entrepreneurial Higher Education Institution*

Also **entire courses can be co-delivered or team-taught by academics and practitioners** offering valuable learning experiences for the teachers who gain practical insights into entrepreneurial practice and for practitioners as they can benefit from academic reflection about their practices, insights into up-to-date research methodologies and results, and the networking with students. Having teachers and practitioners in the classroom together also facilitates quality control, as not all practitioners are equally gifted in inspiring and interacting with students in a productive way. The establishment of teaching and research tandems, which enhance collaboration of academic staff, students and entrepreneurs, already in the course design stage, could be piloted by the case study universities – it would also not imply breaching current accreditation requirements.

### *3.6 Research results are integrated into entrepreneurship education*

**Integrating research results in entrepreneurship education can be a crucial aspect of improving the latter**. Faculty members can be encouraged to follow up and reflect on their experimentation and innovation in the classroom and to publish on their teaching activities. Such a strategy can contribute to developing and spreading the use of innovative pedagogies, and develop adequate teaching tools and methods.

## 4. PATHWAYS FOR ENTREPRENEURS

**Criteria/statements**

### *4.1 The university raises awareness of the value/importance of developing entrepreneurial abilities amongst staff and students*

The starting point is to develop an **understanding of what pathways for entrepreneurs mean to the university** and how this can be **reflected in resources and activities**. This should also take into account the local entrepreneurship ecosystem, that is, all services which are offered outside the university. Such an understanding is not yet developed by the case study universities.

A good first step to increasing awareness of pathways for entrepreneurs is to **effectively use the university's homepage and social media**. Placing information on, or in a "1-3 click" proximity to, the organisation's homepage sends a signal that entrepreneurship is important to the university.

Poster campaigns and campus media can be used to **stimulate active student participation** as well as well as events that such as Start-up weekends and events that are part of the Global Entrepreneurship week.

### 4.2 The university actively encourages individuals to become entrepreneurial

**Student organisations** and the **use of role models** can inspire students to start a business. Start-it smart is a student-run initiative that operates all across Bulgaria with local chapters. Also, Junior Achievement Bulgaria plays an important role in promoting entrepreneurship. To increase outreach and impact of such initiatives within universities more institutional support should be provided. Initially it could be sufficient to embed such activities more into entrepreneurship education activities for example by complementing the practical with more theoretical knowledge and vice versa.

An important measure for motivating staff for entrepreneurship is to inform them about how the university deals with **intellectual property rights** and their ability to monetise their business idea within the institution's regulatory framework.

### 4.3 Business start-up education is offered across the curricula and faculties

The primary purpose of business start-up education is to develop the ability to identify and exploit opportunities and to train students in the skills they need to set up a business and manage its growth. Business start-up education should to be **open to all students regardless of their area of study** because many innovative and viable business ideas are likely to arise from a confluence of technical, scientific and creative study programmes.

Organising interdisciplinary business start-up education seems to be a challenge for the case study universities. Besides overcoming administrative barriers (see above) this requires buy-in from departments and faculties, which may not all (yet) consider business start-up education as relevant to their field.

### 4.4 The business start-up education offer is widely communicated, and measures are undertaken to increase the rate and capacity of take-up

Universities need to ensure that their **business start-up education is well-known both within and outside university** to ensure that a wide range of students are reached and that links with the entrepreneurship ecosystem can be established. Reaching out to a wide range of students can be challenging. A route that universities opt for is to make basic entrepreneurship education mandatory for all students by introducing modules within introductory courses across all departments and faculties. Through these modules, students can be directed to business start-up education. Often there are **complementary events which are organised outside of the classroom** (e.g. Talks by Successful Entrepreneurs) to allows people to participate even if they are not taking a formal entrepreneurship course. To raise interests for electives and extra curricula activities **awareness campaigns** are usually employed using posters, campus media, social media, above mentioned university homepage, as well as entrepreneurship champions, that is, staff who are tasked to promote entrepreneurship on campus.

**Demonstrating impact** of business start-up education, for example using alumni start-ups as role models, can also increase take-up rates.

To **monitor effectiveness** of outreach activities many universities keep track of how many students participate in entrepreneurship and business start-up education activities, and how effective outreach measures are.

*4.5 A suite of business start-up courses exists, which uses creative teaching methods and is tailored to the needs of undergraduate, graduate and post-graduate students.*

Business start-up courses cover the range of **skills and competences for successfully starting, operating and growing a business**. Teaching needs to be tailored to all levels of students and use current best-practice teaching methods. Business start-up education does not fit neatly into conventional models of education that are assessed by means of examination. The teaching of entrepreneurship requires a **practical approach where information and knowledge is generated amongst students and teachers through action-orientated teaching methods**. It also means that **traditional methods of examination have to be reconsidered** to see if they are appropriate to the curricula of entrepreneurship programmes.

*4.6 The suite of business start-up 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.*

Business start-up courses should cover all aspects of starting, managing and growing a business, including idea generation, planning, business launch and development. The **most effective approach is to offer an integrated range of courses to build on the connections between different phases of entrepreneurship**. Business start-up courses should **focus on learning-by-doing** and problem solving which are more effective than passive methods where students receive information through lectures. It is also important to **involve the business community** in the design and delivery of business start-up education **for more opportunities to learn from "real" experience**. T

*4.7 The university provides opportunities to experience entrepreneurship*

An entrepreneurial university **provides opportunities for students and staff to experience entrepreneurship**. Often practiced are student-organised charity events, business fairs and student consultancy projects which **allow students to experience what taking over responsibility means, how to deal with tight deadlines, manage stress and keep clients and stakeholders, which might all have very different expectations and negotiation power, satisfied and happy**.

*4.8 The university provides support for individuals and groups to move from entrepreneurial ideas to action*

**Linking university-internal efforts and initiatives with the entrepreneurship ecosystem** is very important. Learning from an initiative that started in the US and UK, an increasing number of universities across Europe appoint a so-called *Entrepreneur-in-Residence* that will link both systems. Many universities across Europe also create **co-working spaces as a central point for students to experience entrepreneurship** and to provide support to move from ideas to action. The *Gründerwerkstatt*, a subsidised location for founders in the central part of Berlin, offers on approximately 650 square meters 10-15 start-up teams from different universities all across Germany, 18 months of free location, access to laboratories and the university internet, to develop their products or services. A co-working space – such as ELEVEN and betahouse – inside universities is an important infrastructure provision for start-up teams to develop their products or services. It is also likely to become a magnet for students to learn more entrepreneurship.

*4.9 Mentoring by academic and industry personnel is available*

**Matching new entrepreneurs with experienced entrepreneurs** increases the success chances of a venture through experience-based tips and tricks and access to networks. Effective mentoring could be provided by academic staff with entrepreneurial experience and experienced entrepreneurs. **Alumni**

**are a good resource**, too, because they are typically happy to "give back" to their alma mater and volunteer their time to help new entrepreneurs. To ensure that university staff is interested and engaged in helping student entrepreneurs, higher education institutions need to ensure that appropriate incentives or rewards are in place; examples are promotion, monetary resources (e.g., budget for new personnel, travel, projects or infrastructure) and reduced teaching and administrative responsibilities. If mentoring is offered as part of a mandatory procedure, for example to access public funding, it is important that **mentees have the possibility to provide feedback** on the relevance of mentoring offered.

### 4.10 The university facilitates access to private financing for its potential entrepreneurs

Different approaches are currently used by universities to facilitate access to private financing for potential entrepreneurs. Examples are **invest & networking events** which bring together new entrepreneurs and investors, **business competitions and pitching events**, where students have 5 minutes to sell their ideas to professional business people and investors, similar to Dragons Den in the UK. Recently also **crowd-funding** is getting taken up **by universities, which have a large network of potential investors** (e.g., individuals, venture capitalists, corporations) either to promote investment in their spin-offs (i.e., firms in which they hold a share) or generally start-up activities amongst their students and staff.

### 4.11. The university provides access to business incubation facilities

**Incubation facilities** can be very **important support measures** which provide start-ups with a **business location (an address)**, **access to ICT services**, **contacts with co-located companies**, **access to laboratories**, and **business coaching services**. Different models of incubation facilities exist, ranging from facilities on campus, within departments or in separate locations, to off-campus spaces, sometimes within science and technology parks. Universities that have onsite facilities need to **ensure that staff and students are aware** of them and that they **have access to the services that they need**. To raise awareness about available services, incubators could work with academic staff to raise their profile on- and off-campus and undertake outreach campaigns through the campus media (e.g. newspapers, radio, e-newsletters). Universities that do not have on-campus incubators should have an **effective referral system to off-campus incubators and start-up support ser**vices so that students are aware of this possibility, and that academic staff and career centres can direct students to the appropriate support services. Alumni-tenants can be important knowledge partners for the incubator and its tenant firms, serving as marketing channels, network intermediaries, tutors, sponsors and investors.

## 5. UNIVERSITY – BUSINESS/EXTERNAL RELATIONSHIPS FOR KNOWLEDGE EXCHANGE

**Criteria/statements**

### 5.1 The university is committed to knowledge exchange with industry, society and the public sector

Knowledge exchange **includes outflow of knowledge**, for example, through research collaboration, graduation, and staff changing employment, **inflow of knowledge**, for example, through (temporary)

hiring of new staff, lecturers, exchange students and researchers, research collaboration, **and <u>sharing of knowledge</u>** within the organisation.

When building a system to nurture and manage knowledge exchange, a university has to **take into account organisational hierarchies as well as barriers and potential enablers both within the organisation and within knowledge exchange partners**. Knowledge exchange is determined to a large extent by the **perceptions of the respective "other"**. A negative attitude towards entrepreneurship, entrepreneurs and businesses within a university, for example amongst students, researchers, professors and administrative staff, can limit and hinder network formation and collaboration with business partners. A narrow or absent understanding amongst knowledge exchange partners of the work culture, conditions and timelines in universities and how these may impact collaboration, will also limit knowledge exchange. **Communication to ensure that both sides of a knowledge exchange partnership have a clear understanding of respective expectations, limitations and requirements, is a major building block of knowledge exchange**.

Many knowledge exchange activities with business and other external partners are at the individual level, for example collaboration between researchers in higher education institutions and researchers in local companies. Without **clear and vocal leadership promoting collaboration**, knowledge exchange might be a matter of personal motivation rather than being "part of their job". **To ensure organisation-wide commitment**, knowledge exchange should be a core objective of the organisation's strategy and incorporated into the institutional policy in order to:

- Give **guidance** on how different types of relationships with industry, private and public sector organisations can be formed;

- Provide **support** for successfully implementing knowledge exchange; and

- **Remain adaptive** to changing needs and simple and flexible enough to keep requirements for administrative work low.

**Different types of knowledge exchange activities require different approaches to enhance co-ordination**. Centralised approaches – for example a central knowledge transfer office in charge of commercialisation of the research results owned by the higher education institution– work well for activities, which require a certain amount of administrative support. Such an approach, would, however, be less effective if collaboration is based on individual contacts and is mainly in specific activities, such as, for example, the collaboration with external experts in teaching.

Having a **database about current and past knowledge exchange activities and collaboration requests** is a significant advantage for developing knowledge exchange between higher education institutions and external partners. Access to this database should be open for all key internal stakeholders throughout the higher education institution. Also students should have access to information identifying the key partners of the higher education institution and outlining the collaboration. Initiatives, such as this one, need to have a sustainable basis of human and financial resources to make an impact.

*5.2 The university demonstrates active involvement in partnerships and relationships with a wide range of stakeholders*

Not all potential knowledge exchange partners of a university have a clear understanding of the latter's work culture, regulations and timelines and their possible impacts on collaboration. This limits opportunities for knowledge exchange. The **establishment of meeting fora, where external and**

**internal stakeholders can meet, discuss and exchange can help foster knowledge exchange**. Ideally, **brainstorming and idea creation activities are expert-facilitated in order to alleviate communication difficulties** and barriers related to the use of jargons, different working styles and organisational cultures. There are efforts underway at all of the case study universities to establish meeting fora that are relevant for both education and research. For these to be effective, universities need to raise their profile as research partners (see above).

**Alumni carry huge potentials as enablers and accelerators of knowledge exchange**. A strong and well-structured alumni organisation can be a very valuable financial and social asset for higher education institutions. Alumni **should be actively involved in knowledge exchange activities**. There are different ways for this (Table 3).

**Table 3.   Examples of alumni involvement in knowledge exchange activities**

| | |
|---|---|
| (1) Curriculum design and programme delivery | (6) Definition of key areas for the research agenda |
| (2) Lifelong learning activities | (7) Design & delivery of entrepreneurship education |
| (3) Career services – assessment centre training | (8) Mentors of start-ups |
| (4) University strategy design, monitoring and evaluation | (9) Crowd-funding for start-ups |
| (5) Fundraising for the entrepreneurial university agenda | |

Source: HEInnovate Guidance note on HEI – Business/External Relationships for Knowledge Exchange; online available at www.heinnovate.eu

An advanced form of a knowledge partnership entails the **engagement of external stakeholders in governance structures**. For a growing number of higher education institutions across Europe, representatives of businesses, industry organisations, civil society organisations, and national and sub-national governments form part of their governing bodies.

## 5.3 The university has strong links with incubators, science parks and other external initiatives, creating opportunities for dynamic knowledge exchange

**Proximity of universities to knowledge intensive structures**, such as incubators and science parks but proximity **per se does not generate knowledge exchange**. Specific collaborative mechanisms are needed for higher education institutions to capitalise on the knowledge in the local knowledge-intensive sectors.

Incubation facilities usually maintain close links with research and entrepreneurship support activities of higher education institutions, because these can be important recruitment channels for new tenants. **Extra-curricular entrepreneurship activities** are good opportunities to link academic activities in research and teaching with incubation facilities. Examples are: idea generation workshops for researchers, students and tenant firms and (international) start-up weekends.

Science parks are major infrastructure investments, often with a clear regional or local development focus. The majority of science parks are built around or in close proximity to one or more higher education institutions. Innovative firms will locate in science parks in order to gain access to higher education institution-based knowledge, research and technology networks, utilise technical and administrative services, and benefit from the proximity to highly skilled and specialised labour, and research. **Cross-fertilisation of knowledge** is important and can be achieved **through the provision of open spaces for collaboration and networking opportunities**. Also the **co-location of university facilities/departments and firms** has become international good practice. For knowledge exchange to happen, communication between and within these two groups is crucial. Establishing a functioning communication network may require **adaptation of the infrastructure for cross-communication purposes**, for example, through **joint cafeterias and newspaper and journal corners**.

*5.4 The university provides opportunities for staff and students to take part in entrepreneurial activities with business/the external environment*

This requires **clear incentives for students and staff** starting with the **removal of administrative barriers**. For students, there are several obvious reasons and incentives to engage in entrepreneurial activities, for example, gaining experience and contacts, ECTS credits, etc. Depending on the intensity and duration of activities, students may, however, encounter administrative barriers. For example, an additional internship or starting up a business might require a suspension of studies or an extension of the enrolment period, which might not be compliant with existing study regulations. These kinds of administrative barriers should be reviewed and revised. Generally, incentives for staff to engage in knowledge exchange are less clear and often limited to individual motivation. Establishing clear objectives and providing incentives, for example, freeing resources (e.g., time for knowledge exchange activities during official working hours), will be crucial to promoting knowledge exchange as a core component of career development.

*5.5 The university specifically supports staff and student mobility between academia and the external environment*

**Mobility needs to be incentivised and facilitated**. For students it can be difficult to include mobility periods into their study programme, and often, due to curriculum reforms, internship requirements get soften or abandoned. Staff should not be penalised for taking up mobility offers, for example, by being omitted from regular promotion procedures. For staff, sabbaticals and other forms of mobility in businesses should be encouraged as an alternative to the traditional academic sabbatical, i.e. research orientated or staff hosted in another academic institute.

**Incorporation of mobility initiatives into broader teaching and research activities** is important **to enhance contribution of individual activities to organisation-wide knowledge exchange**. For staff members on mobility, joint events and projects with host organisations should be promoted as ways to enhance the organisational impact of knowledge exchange beyond involved individuals. For student mobility, this includes (i) accompanying services during the internship and (ii) opportunities to reflect about learning outcomes and to share experiences with other students.

**Effective support for organising for mobility can be resource intensive** for the individuals involved. To overcome this, a **centralised support service reduces time efforts** and make sure that information about mobility schemes and partners is widely disseminated. At the same time, it will be important to have **contact persons for mobility at the faculty/department level**. Decentralised career development officers can be an effective way to spread information about mobility opportunities amongst staff and students. They can also act as first contacts during mobility periods.

**Administrative staff and doctoral students are important target groups for mobility**. Mobility is, essential for doctoral students, and knowledge exchange should become a standard requirement of doctoral study programmes. Mobility schemes for administrative staff can help to increase common understanding of how things actually work in a company or in higher education institutions. All case study universities offer mobility opportunities for doctoral students, some also for administrative staff. This also includes international mobility (see 6.ff below).

*5.6 The university links research, education and industry (wider community) activities together to affect the whole knowledge ecosystem*

## 6. THE ENTREPRENEURIAL UNIVERSITY AS AN INTERNATIONAL INSTITUTION

**Criteria/statements**

*6.1 Internationalisation is a key part of the university's entrepreneurial strategy*

**Promoting internationalisation as an integral part of the overall university strategy requires top-level leadership, bottom-up and cross-institutional support, and incentives and reward structures to promote internationalisation in teaching, research and knowledge exchange**. Constant internal and external communication, monitoring, evaluation and an on-going refinement of strategy and practices are needed to assure continued advancement in internationalisation. The **use of information and computing technology** (ICT) **to promote internationalisation** efforts can increase access and choices in internationalisation, prepare students and staff for international mobility, enhance sharing of experiences, and organise virtual exchange activities between the home university and international partner organisations.

*6.2 The university explicitly supports the international mobility of its staff and students (including PhD students)*

International mobility requires a **specific support infrastructure and long-term dedicated resources** to offer scholarships, mobility loans and daily support for staff and students during their stay abroad. A growing number of universities have established centrally organised international mobility and recruitment centres, often with branches abroad. As for mobility initiatives in general (see above), also international mobility requires **incorporation into broader teaching and research activities** in order **to have an organisation-wide impact**.

*6.3 The university seeks and attracts international and entrepreneurial staff (including teaching, research and PhDs)*

The attractiveness of a university for international staff does not only come from the quality of the employment on offer, but also depends upon the **existence and attractiveness of cultural amenities, international childcare facilities, schools, and the presence of an international connected and open-minded local community**. Smaller higher education institutions, with only few international connections, are likely to face difficulties when competing internationally for students and staff. Higher education institutions which are located in less developed and attractive localities are likely to suffer from contextual barriers. **Strong local partnerships**, involving local government and key local players, such as internationally active companies and international corporations – as well as other higher education institutions located in the same city/region – **can make a difference in raising the attractiveness** of universities by providing an attractive offer besides the actual employment contract.

*6.4 The university demonstrates internationalisation in its approach to teaching*

An entrepreneurial university tailors its teaching and learning environment to a global audience. It invests in **globally oriented curricula that prepare students for performing professionally and socially in an international and multicultural context**. This is not only about curriculum content, but also about the way in which the content is taught, learned and assessed and how students are supported within their programmes. Globalised curricula embrace both 'internationalisation abroad' and 'internationalisation at home' by providing opportunities for staff and students to experience education, work placements in other countries whilst, at the same time, bringing new cultural experiences to the home campus through sharing international teaching, learning and research experience in multicultural classrooms (Table 4).

**Table 4.  Examples of enablers for globalised curricula**

| | |
|---|---|
| (1) E-learning, study abroad programmes | (6) Opportunities to learn languages |
| (2) International short-term course exchanges | (7) International learning materials and resources |
| (3) International internships | (8) Links with local international businesses |
| (4) International entrepreneurship summer schools | (9) Links with businesses, NGOs, public organisations abroad |
| (5) International entrepreneurs as guest lecturers | |

Source: HEInnovate Guidance note on The Entrepreneurial University as an International Institution; online available at www.heinnovate.eu

Globalised curricula are also for students who are reluctant to move abroad. This can be accomplished through working online with students and staff from partner institutions in multiple geographic areas. ICT can offer new educational opportunities at a lower cost and with more flexibility, irrespective of their physical location (e.g. online student collaboration, virtual mobility, virtual field trips and virtual learning environments, e-pedagogy, distance learning, etc.). Universities should raise awareness of how ICT can enhance the learning experience of students by introducing them to cross-board educational opportunities such as MOOCs (Massively Online Open Courses).

*6.5 The university, its departments and faculties actively participate in international networks*

International networks and partnerships work best when they have **clear objectives and criteria for all partner organisations**. In order to **move from individual benefits (of the people involved) to organisation-wide benefits (for the university)** attention needs to be paid to the following steps of institutional procedures (Table 5).

**Table 5.  Steps for drawing institutional benefits from international networks**

| |
|---|
| (1) Identification of goals and added-value with regard of how these contribute to the overall university strategy |
| (2) Cyclical evaluation of the organisational structure with regard to resource impacts and (expected) benefits |
| (3) Provision of sustained resources to serve/manage the network |
| (4) University-wide dissemination of information of objectives, (expected) benefits, progress and results |

Source: HEInnovate Guidance note on The Entrepreneurial University as an International Institution; online available at www.heinnovate.eu

## 7. Measuring the Impact of the Entrepreneurial University

**Criteria/statements**

*7.1 The university assesses the impact of its strategy on entrepreneurship across the institution*

The **concept of an entrepreneurial university combines self-perception and university internal reflection with perceptions of external stakeholders**. This also applies to measuring impact. Hence, the aim is "to measure … excellence as perceived through the eyes of all 'legitimate' stakeholders and whether this is reflected in [the university's] vision, mission, strategy and process (ways of doing things)" (Gibb, 2012).

**Universities** are likely to **place different emphases on their entrepreneurial strategy**. Some will focus on promoting entrepreneurship through teaching and learning, others may focus on business and start-up knowledge exchange or on internationalisation. The question of emphasis relates also to the organisational development of the higher education institution. All this should be taken into consideration when measuring impact. The actions of an entrepreneurial higher education institution can, for example lead to:

- An *entrepreneurial culture* within the organisations and associated features, such as low levels of hierarchy, high levels of information sharing and collaboration;

- *Innovative approaches* to teaching and learning across all disciplines, with interdisciplinary activities and an emphasis on student-centred, problem- and practice-based methods;

- *Knowledge exchange activities* which have organisation-wide impacts beyond the involved individuals; and

- *Start-up support*, which provide tailored and hands-on support for would-be entrepreneurs to put ideas into action; and

- *Local economic and social development*, for example through increased firm-level innovation activity resulting from knowledge exchange, jobs created by start-ups, improved and additional community services.

**Standard instruments** for measuring impact are **surveys, focus groups and other forms of information gathering from internal and external stakeholders**. These instruments serve multiple purposes, which should be identified beforehand to reduce frequency of enquiries and increase efficiency. Some of the information can also be collected with or through external partners, for example, professional associations or employers' organisations who are interested in the employability of graduates.

**Table 6.   Assessment of innovative features of an entrepreneurial university**

| |
|---|
| (1) **Awareness**: Are students and academic and administrative staff involved in the design, implementation and evaluation of the entrepreneurial university strategy? |
| (2) **Commitment**: Are sufficient resources dedicated to the entrepreneurial university strategy? |
| (3) **Implementation**: Is the entrepreneurial university strategy implemented? Are there areas which face more/less difficulties in being implemented? If so, why? |
| (5) **Participation** rates of staff and students in activities to promote an entrepreneurial culture across the organisation: Who participate? And who does not? Which activities are preferred by students? By staff? By external stakeholders? |
| (6) **Revenue structure**: What are opportunities for raising revenue from non-fee and public sources? What is the ratio of external funding to fee and public funding? How proactive are deans, department heads and professors in seeking external funding? Are targets sufficiently reflecting the entrepreneurial university strategy? |
| (7) **Allocation of funding**: Is resource allocation competitive? Are criteria regularly assessed for alignment with entrepreneurial objectives? |
| (8) **Recruitment, promotion, incentives**: Are entrepreneurial individuals and involvement in entrepreneurship promotion activities (e.g., sharing of research results with students, mentoring) taken into consideration for recruitment and promotion? |
| (9) **External stakeholders in governing boards**: Are external stakeholders present on boards? In which roles? Levels of engagement and how this influences the entrepreneurial university strategy? |
| (10) **Participation of university staff in governing boards of external partners**: Level of engagement? Resulting activities? Impacts on the entrepreneurial university strategy? |

Source: HEInnovate Guidance note on Measuring the Impact of the Entrepreneurial Higher Education Institution; online available at www.heinnovate.eu

**Transforming a traditional university into an entrepreneurial university is neither an easy nor straightforward endeavour**. **Major obstacles may lie in the higher education system**.

## 7.2 The university assesses the level of engagement in entrepreneurship education across the institution

Assessing engagement levels **starts with the basic step of establishing whether entrepreneurship education is available** and to whom it is offered. It will be important to gather **information on take-up of different types of entrepreneurship education activities** since it is likely that differences in take-up also relate to course specific characteristics. For example, students might be more attracted by an interdisciplinary course, which is offered over the weekend, outside the campus. **Course specific information needs to be taken into account when calculating ratios**, for example comparing the percentage of students that have access to entrepreneurship education and the actual percentage of take up. The following questions could be asked to assess engagement levels in entrepreneurship education:

**Table 7.   Questions to establish engagement levels in entrepreneurship education**

| General questions | Course specific questions on |
|---|---|
| Who can attend entrepreneurship education activities? | Characteristics of the teacher and teaching style |
| Is entrepreneurship education mandatory? | Location and class room setting |
| How do students find out about non-mandatory activities? | Content |
| Are there interdisciplinary activities; open to all students? | Preparation requirements and assignments |
| | Length and timetable |
| | Learning outcome assessment |

Source: HEInnovate Guidance note on Measuring the Impact of the Entrepreneurial Higher Education Institution; online available at www.heinnovate.eu

**Assessing the impact of entrepreneurship education should be strictly related to the objectives of entrepreneurship education**. Generally speaking these can be to prepare and equip students for (a) behave entrepreneurial in all aspects of their lives, (b) behave entrepreneurial as employees, or (c) become entrepreneurs, that is, starting up and/or developing an entrepreneurial firm. These objectives can be considered as poles on a scale for which sets of concrete learning objectives and expected learning outcomes need to be defined. Assessment strategies will be different of each of them.

Assessing the impact of entrepreneurship education activities also includes **measuring the added value of education on students' competences and skills**. Often measured are differences in self-efficacy, creativity, risk propensity, locus of control, and entrepreneurial intentions, that is, the intention to start-up a business at some time in the future. This is done by surveying students at different stages of the education activity (e.g., prior, during and after). **Difficulties in establishing causality should, however, not be underestimated**. A principal requirement for evaluating an impact is establishing that a difference in one, or more, relevant outcomes is caused by a particular treatment. This can be difficult. For example, establishing a counterfactual group, with the same underlying mindset and skills set as the group that receives entrepreneurship education will be challenging.

Developing entrepreneurship skills requires also **learning-by-doing activities, outside of the classroom and in the real business environments**. Learning in practice, for example, through internships and shadow-the-entrepreneur exercises, can provide some of this experience, but not all. Taking over full-fledge responsibility, for example, is an experience, which requires students to actually start-up or take over an existing business. **Assessing the impact of these different teaching and methods requires specific approaches**, such as focus groups and individual feedback techniques (e.g., learning journals), and may also require involvement of learning-in-practice partners, for example, internship supervisors and shadowed entrepreneurs.

Fulfilling methodological requirements in evaluating impacts of entrepreneurship education activities, can be very resource intensive and may not lead to the expected results, especially if panel studies and long term tracer studies with the same sample groups are required. To keep things simple, universities could therefore concentrate, initially, on **monitoring and evaluation of the match between course objectives, learning outcomes and pedagogies**. Questionnaires, although often used, are not always the best instrument to gather information about this. Feedback techniques for individuals and groups should also be used.

### 7.4 *The university carries out regular monitoring and evaluation of the universities' knowledge exchange activities*

**Different knowledge exchange activities have different impacts that can be measured**. **Some have more tangible outcomes than others**. The number of patents and licenses, and their associated revenues as well as the numbers of spin-offs and start-ups (although less easily) can be monitored, but it is more difficult to gather information about the impact of the involvement of externals in teaching, of collaboration on internships and of secondments, especially if these are not centrally organised and managed. In case a university offers **incentives and rewards** for students and staff to engage in knowledge exchange activities, these **should be closely monitored in terms of their impact**, for example, on the number of new activities and the sharing of information across the organisation and with external partners.

Monitoring and evaluation of knowledge exchange activities starts with a **mapping of people and organisational units exposed to and involved in knowledge exchange activities**, distinguishing

different types of activities in order to **establish an understanding of how many staff and students are aware of the university's knowledge exchange strategy and the opportunities to contribute to it**.

**Table 8.   Mapping awareness of and participation in knowledge exchange activities**

| |
|---|
| (1) **Awareness**: Is information about current and past activities available across the higher education institution? What is the ratio of staff and students exposed to knowledge exchange activities over those involved in activities? How widely and well-known is the intellectual property policy within the organisation? |
| (2) **Participation** To what extent are staff and students engaged with local businesses and society, for example, are 'real world' problems taken up in research, study assignments and degree theses? If staff members are allowed or encouraged to take ownership in new ventures, businesses or social enterprise organisations, to which extent is this practiced? |
| (3) **Support**: If support mechanisms are in place to guide and assist staff and students to engage in knowledge exchange, what is the take up? |

Source: HEInnovate Guidance note on Measuring the Impact of the Entrepreneurial Higher Education Institution; online available at www.heinnovate.eu

### 7.5 The university carries out regular monitoring and evaluation of the impact of start-up support

Universities that provide start-up support – for example, coaching and mentoring, access to laboratory and workshop facilities belonging to the higher education institution, provision of incubation facilities and temporary business premises, support in developing networks, and facilitating access to finance – need to **regularly monitor the quality, take-up and effectiveness**. Also in case start-up support is offered by other organisations, the university should **stay informed about the quality and effectiveness of externally offered services** to eventually suggest improvements of existing services and introduction of additional services according to the needs of would-be entrepreneurs and teams that emerge from universities.