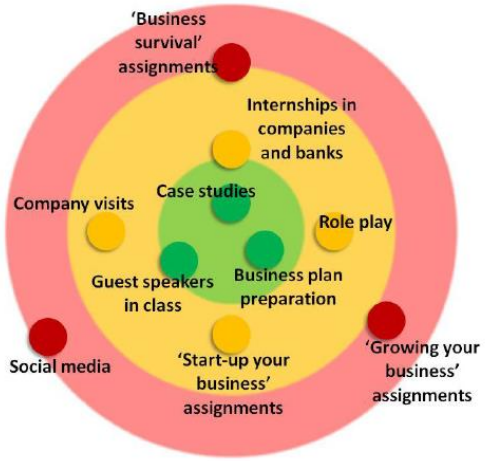


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TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

UNIVERSITY ENTREPRENEURSHIP SUPPORT: POLICY ISSUES, GOOD PRACTICES AND RECOMMENDATIONS

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Nina Hadidomová, ASTRA, SLOVAKIA

Strategic issues in university entrepreneurship support

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- Tailored practices needed
  - educating future entrepreneurs
  - helping them to take their first steps in forming and growing a business
  - dedicated start-up support services
  - activities to offer would-be entrepreneurs and those already in the start-up
  - consultation and access to networks and premises
  - rewarding those who are designing and implementing innovative and high quality pedagogical material and teaching
  - rewarding those who are sharing and promoting the dissemination of ideas and good practices
  - encouraging professors, researchers and university administration to join such an activities

Strategic issues in university entrepreneurship support

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- The emergence and implementation of entrepreneurship strategies has had an impact on what universities perceive as their „first", „second" and **„third" missions**
- Impact on what the best **linkages** are between education, research, and promoting social and economic development
- Internal governance
- Positioning in local, national and global levels
- Strategic partnerships are issues for debate in defining the role of universities in promoting economic development and growth.
- Funding: 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
- 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.

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Strategic issues in university entrepreneurship support

- 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
- 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.

STRATEGY: Good practice criteria

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- *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.*

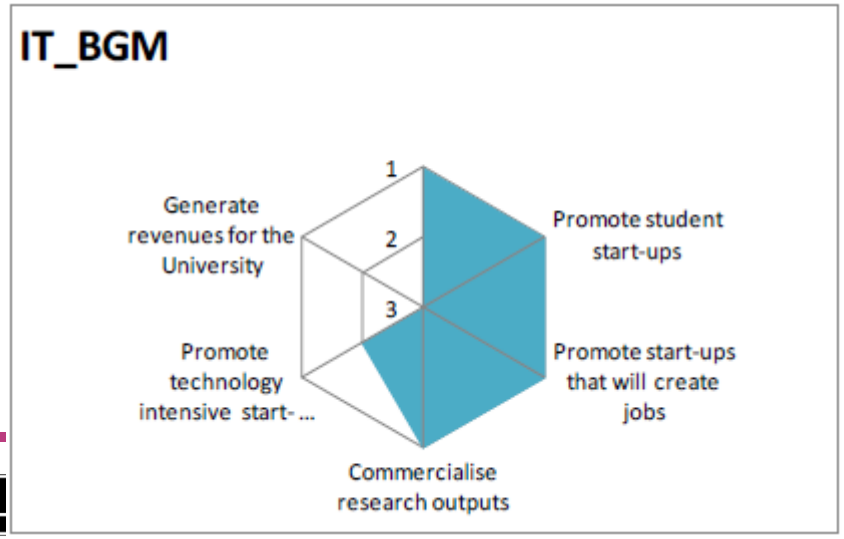
Box 1. Strategy in university entrepreneurship support: criteria of good practice

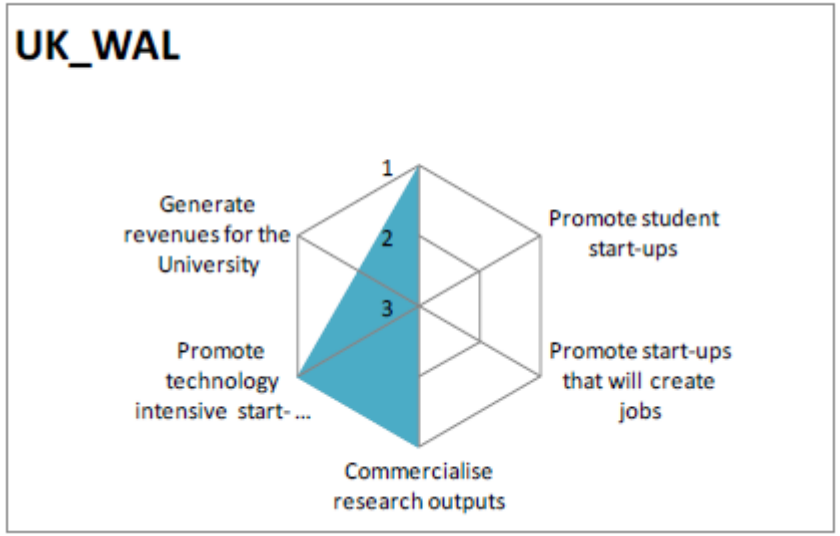
1. A broad understanding of entrepreneurship is a strategic objective of the university, and there is top-down support for it.
2. Objectives of entrepreneurship education and start-up support include generating entrepreneurial attitudes, behaviour and skills, as well as enhancing growth entrepreneurship (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.

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- The first three objectives 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.

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





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- Information about entrepreneurship support activities needs to reach potential beneficiaries.
- Internet presence matters.
- the number of clicks needed from the university‟s main website to arrive at information about the entrepreneurship support provided by the university ...(average 3.1 clicks are needed)...



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Incentives and rewards for professors

- 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.







Financing and development of human resources

- Human resources for entrepreneurship support can either b internally or recruited and developed.

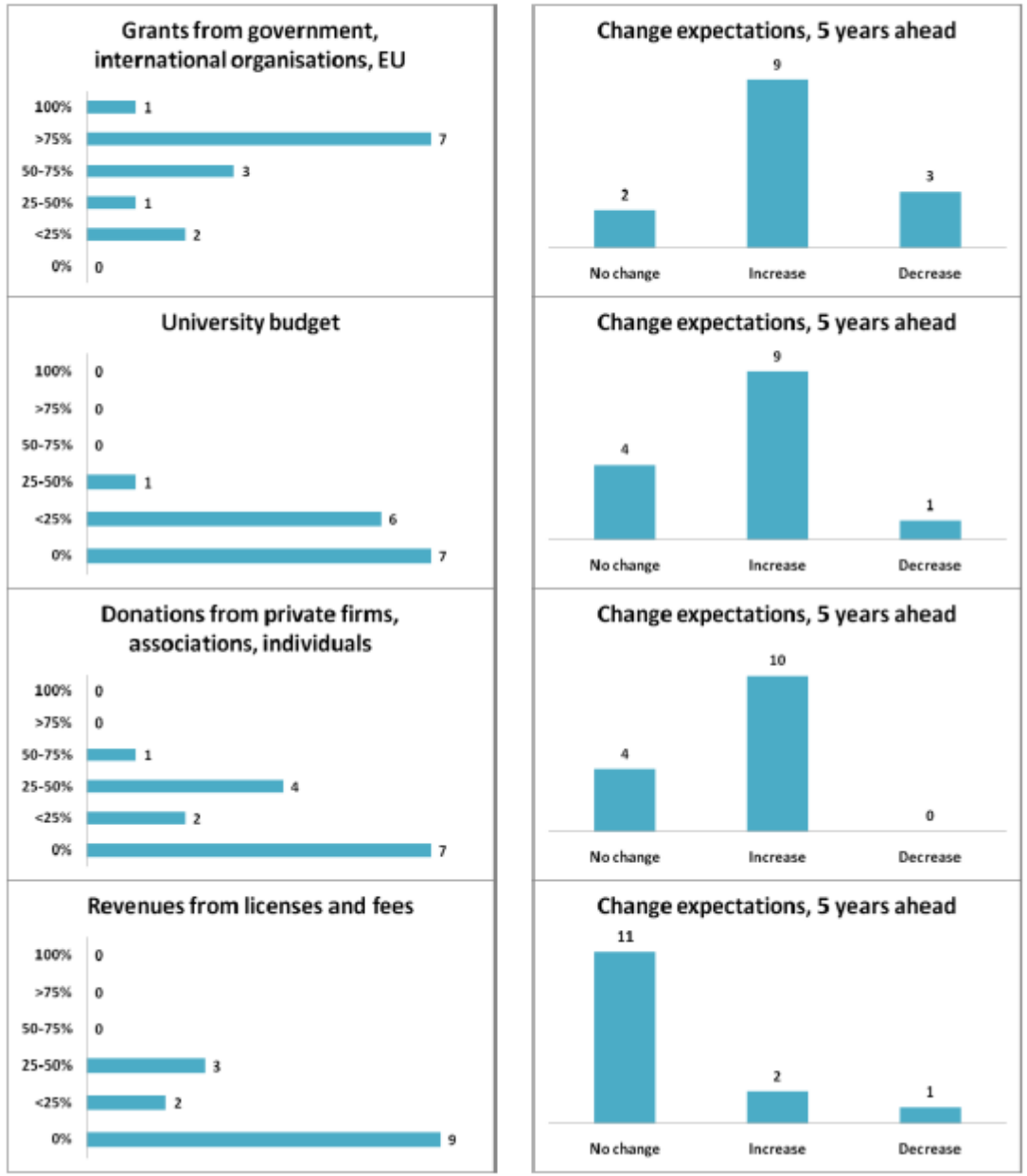
Box 2. Criteria of good practice in financing and human resources development

A minimum long-term financing of staff costs and overheads for graduate entrepreneurship is agreec 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 entrepren start-up support is in place.



Figure 3. Sources of financing for university entrepreneurship support



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.

- a clear need to develop and promote the right set of skills and amongst staff as well as a broad appreciation of entrepreneurship.

Start-up support infrastructure

- More and more universities 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.

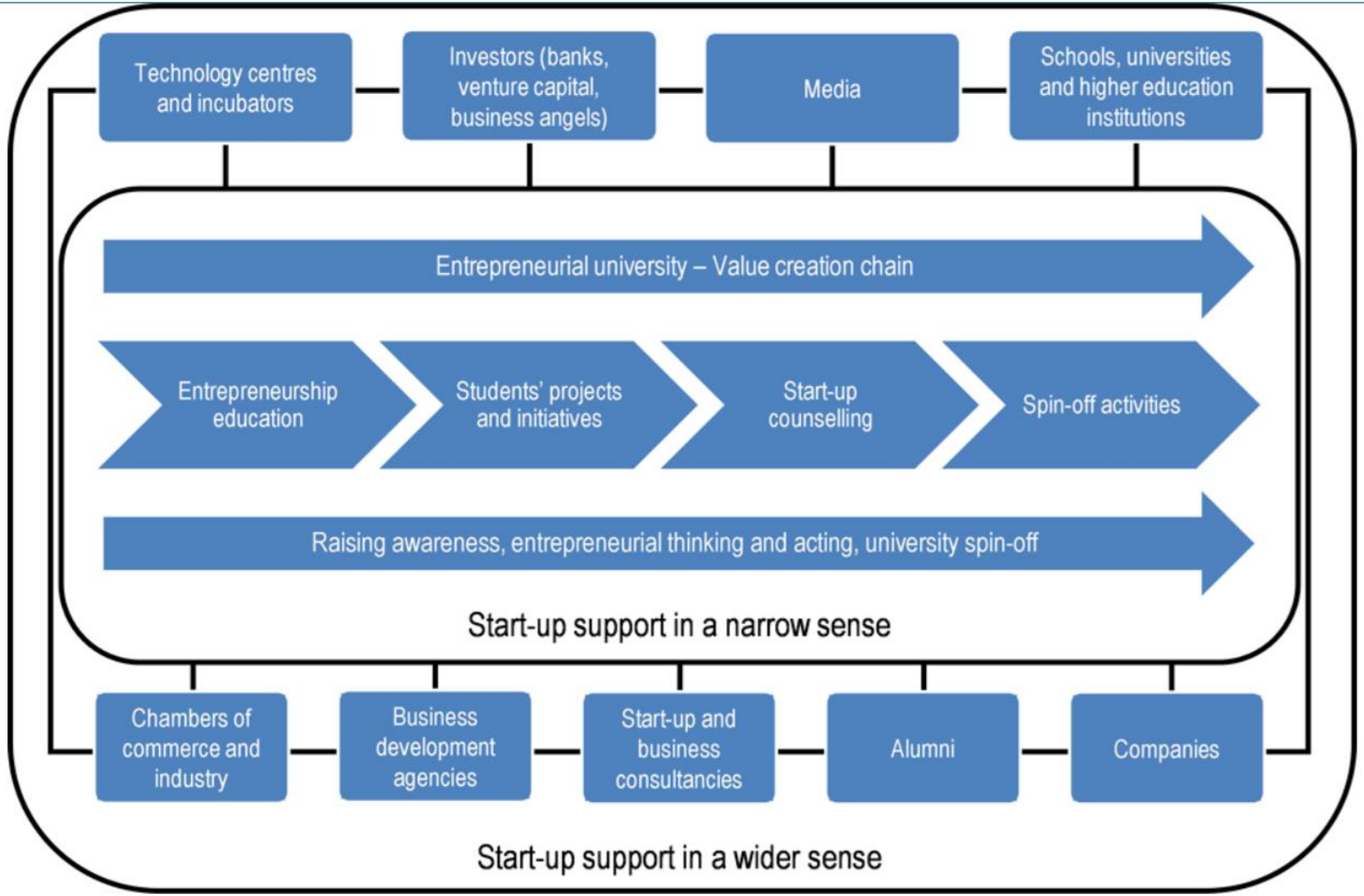


Box 3. Criteria of good practice in start-up support infrastructure

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.




Technology centres and incubators
Investors (banks, venture capital, business angels)
Media
Schools, universities and higher education institutions
Entrepreneurial university – Value creation chain
Entrepreneurship education
Students' projects and initiatives
Start-up counselling
Spin-off activities
Raising awareness, entrepreneurial thinking and acting, university spin-off
Start-up support in a narrow sense
Chambers of commerce and industry
Business development agencies
Start-up and business consultancies
Alumni
Companies
Start-up support in a wider sense

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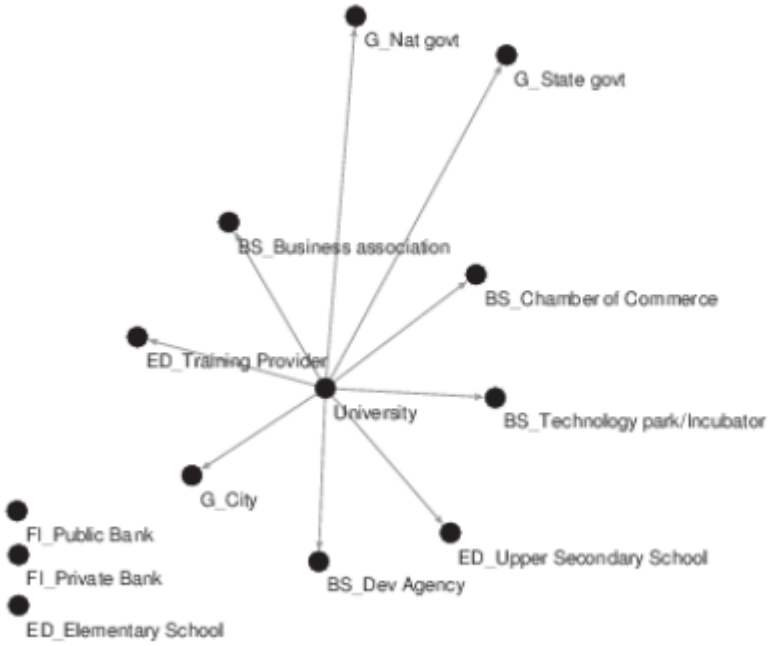
University entrepreneurship support has its limits. It prepares students for future intrapreneurial and entrepreneurial careers and promotes the commercialisation of research results.

Close co-operation and integration of university internal and external support infrastructure and services is an important success factor.

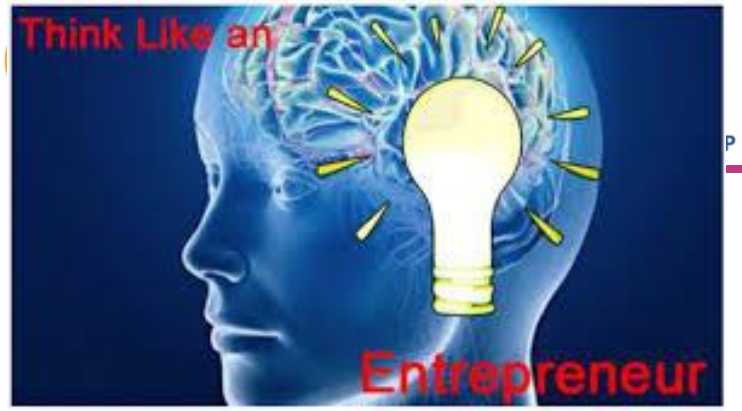
Getting in private actors contributing to university entrepreneurship support as early as possible is crucial in exposing would-be-entrepreneurs and support providers to the „world of business".



Figure 5. Partnering and strategic networking of universities



Entrepreneurship education



- 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 impo
- Increasing demand for higher education, 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.
- Which are the skills and competencies that are most useful? EntreComp?
- The demand for entrepreneurship courses is growing for **science, engineering, and arts faculties.** The underlying assumption is that innovative and viable business ideas are more likely to arise from students pursuing technical, scientific and creative studies.
- REALITY? the majority of entrepreneurship courses are offered in business and economic studies

Traditional methods in courses and teaching methods „about“ and „for“ entrepreneurship:

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- 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**.
- The entrepreneurship courses differ - they all share subjects that are either **about or for** entrepreneurship:
- 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 ....
- Generalist courses i.e. those that essentially teach *about* entrepreneurship „The role and importance of entrepreneurship in society“ and „The macro-economic and socio-cultural dimensions of Entrepreneurship“.
- **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. Resource requirements are not adequately recognised in funding allocation mechanisms.

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

- 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.







Good practices: entrepreneurship education

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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 EE.

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 EE can be expanded and tailored to different student interests and needs.

Widely communication and advertising of the EE, 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.

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.

Figure 6. Student take-in channels in entrepreneurship education

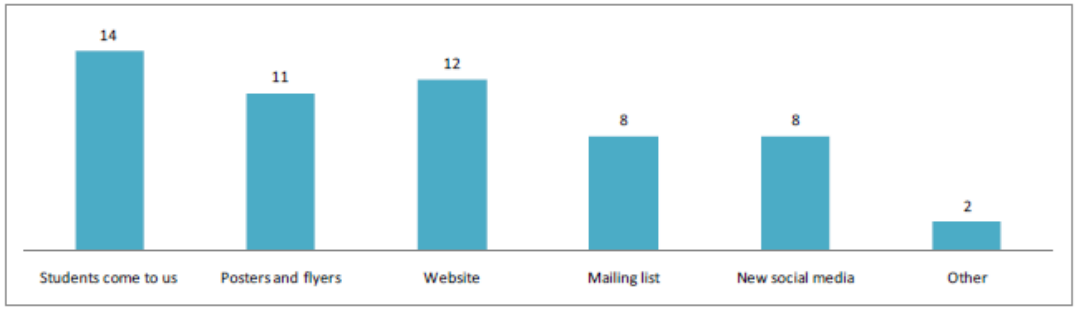


Figure 7. Teaching methods in entrepreneurship education

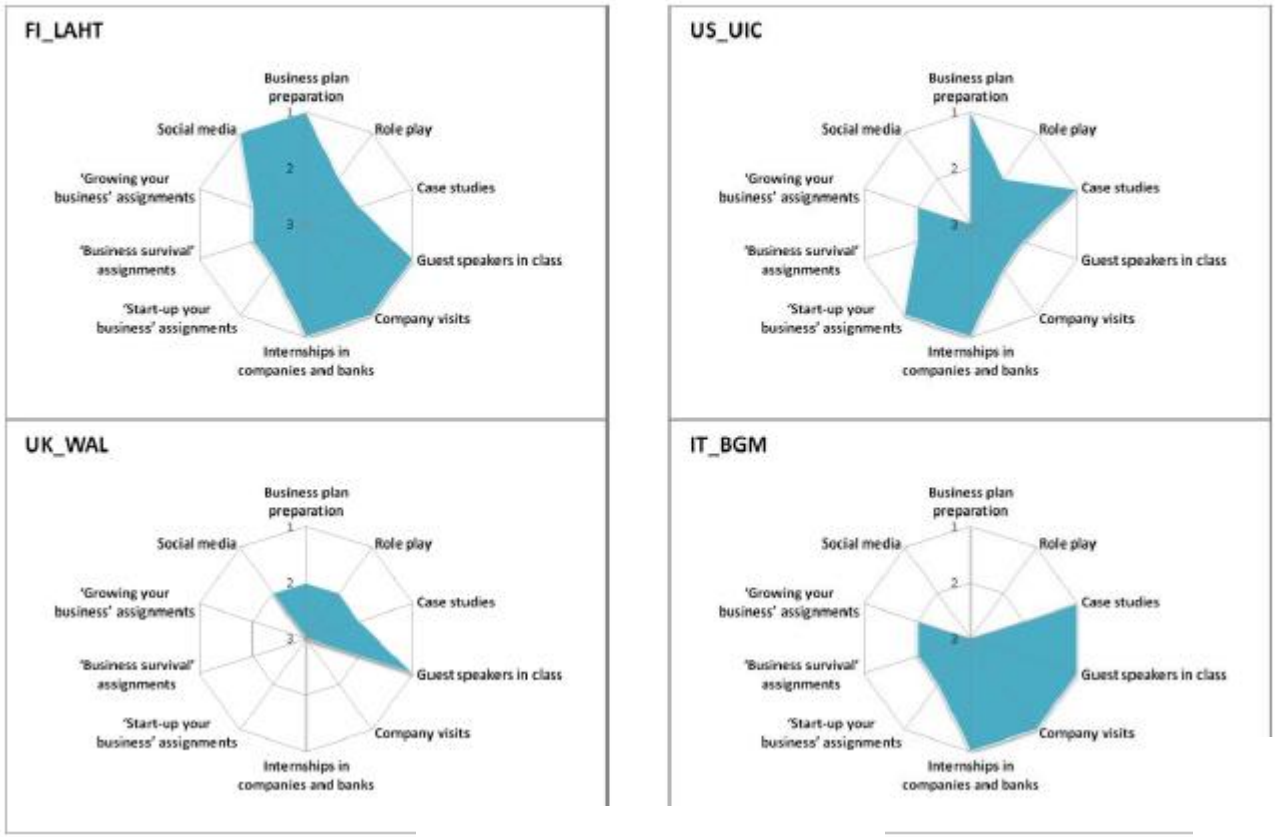
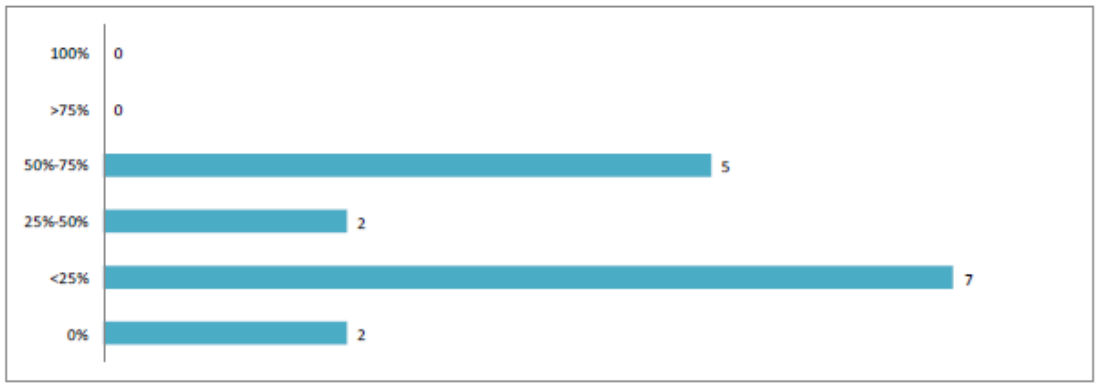






Figure 8. Share of teaching by 'externals'



Start-up support



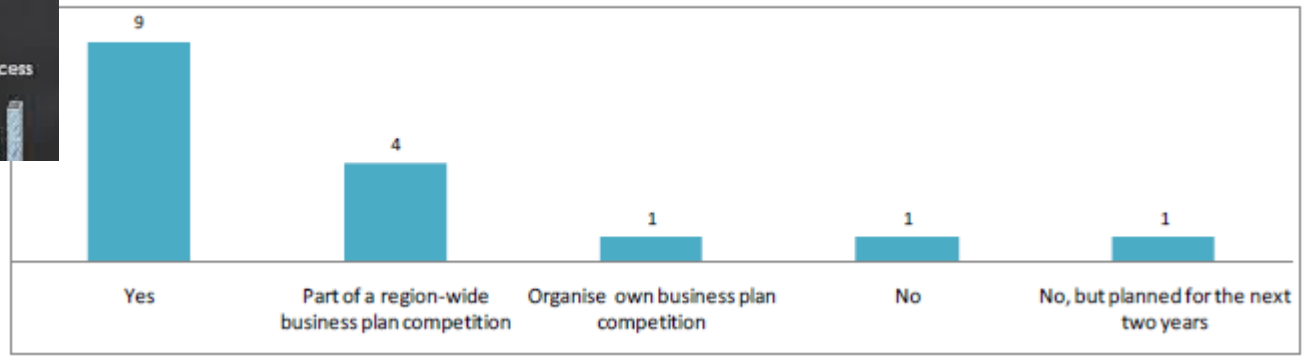
Box 5. Criteria of good practice in business start-up support provided by universities

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.



Figure 9. Business plan competitions





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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 EE being a key challenge.

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.





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Key issues for policy recommendation 1



Top-management support for the entrepreneurial mission

- 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.
- The 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.
- 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.

Key issues for policy recommendation 2



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

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.



Key issues for policy recommendation 3



Establishing a functional entrepreneurship-related incentive and reward system

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.

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.

Key issues for policy recommendation 4

Improving university internal information flows

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.



Key issues for policy recommendation 5



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

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.

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.

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.

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.

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Key issues for policy recommendation 5



Investing in students…

Students can add immense value if given the opportunity and support to act.

The 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.

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

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.

Key issues for policy recommendation 6

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Investing in teachers

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.



Educating educators

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Entrepreneurship as a discipline pioneered the pedagogically organised use of practitioners in the classroom

Entrepreneurship education today is characterised by a more eclectic collection of teaching staff than other disciplines.

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



- most academic teachers have little or no practical experience of being entrepreneurs them selves, calls have been made for more training opportunities for those involved in entrepreneurship training
- 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.

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Effective entrepreneurship education programme preparation

Thursday: required resources, infrastructure, and environment

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Time	Thursday, September 22, 2022	Room 2.01
	Required resources, infrastructure, and environment	
09:00 - 10:15	**Raising awareness of entrepreneurship education (EE) in the university** • Challenge to turn HEI into an entrepreneurial one: **Our university today:** Presentation and discussion	TUKE CA partners
10:15 - 10:45	**Expert presentation:** **Johannes Braith, CEO and Co-founder of Storebox Ltd.** **"Supporting students' becoming entrepreneurs"**	UAS BFI Vienna
10:30 - 11:00	**Break**	
11:00 - 11:45	**Assessment of infrastructure/resources for EE**	TUKE presentation 2
11:45 - 12:30	**Key elements of good EE environments** • Discussion: My university- resources, infrastructure and environment needs in future	CA partners
12:30 - 14:00	**Lunch**	
14:00 - 14:45	**Group work** • Development of section 5 of D2.2 "University scheme for entrepreneurship education support"	CA partners
14:45 – 15:30	1 CA partner per country to present results of group work	UAS BFI Vienna
15:30 - 16:00	**Workshop progress** • Plenary session	

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Entrepreneurial university

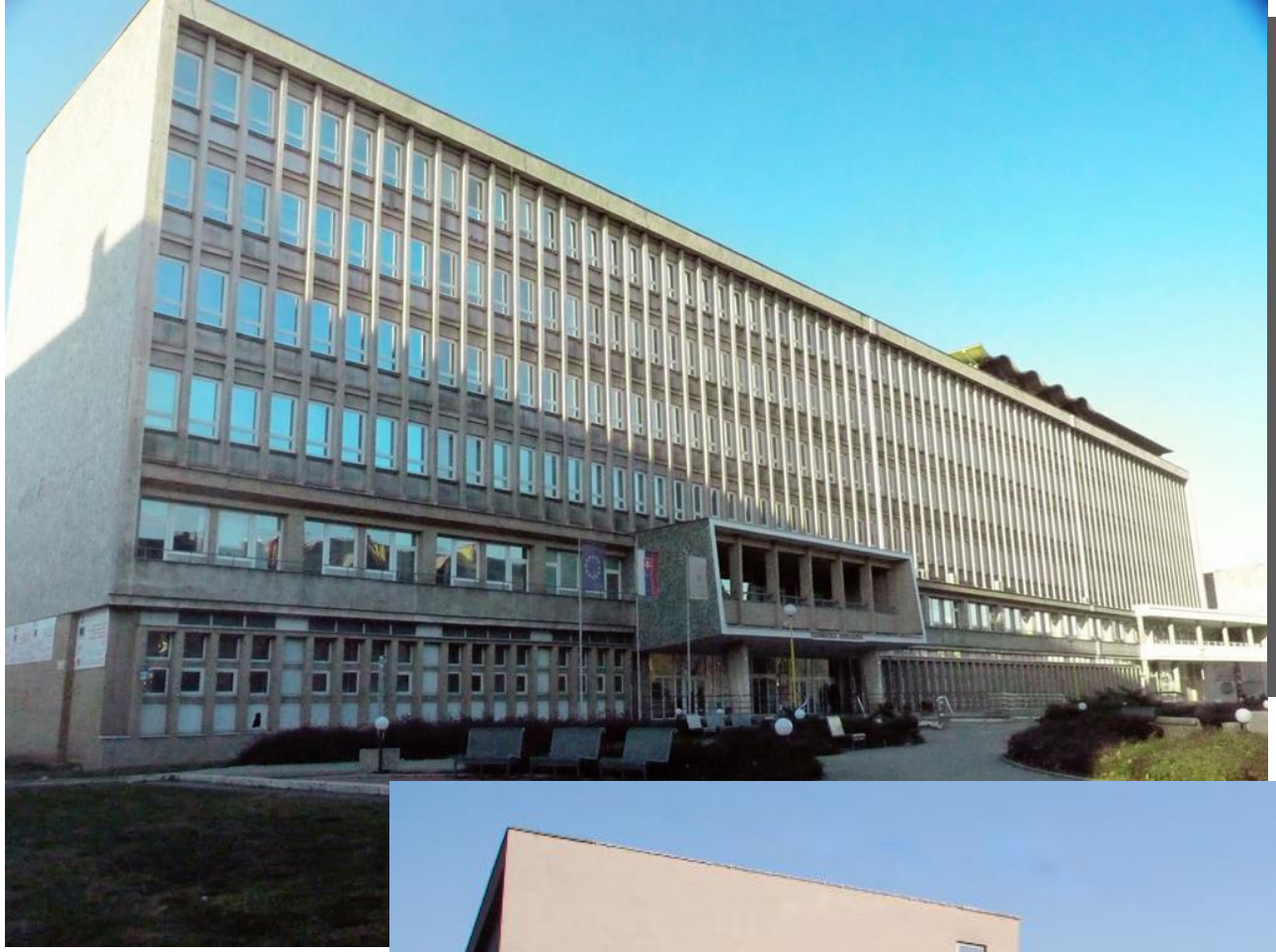
WHY? Making education fit for tomorrow's job market

Higher Education Institutions who wish to explore their innovative potential.

Eight key areas of change

One of them is **infrastructure**





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TECHNICOM – university science park where entrepreneuurship and innovation happens...?



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Infsrastructure, resources - mission completed???



- we need a dedicated building.. and people – vic
- innovation
- or entrepreneurship as an invisible and intangible quality ever-present?

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What we think universities are for and benefit society

Traditional

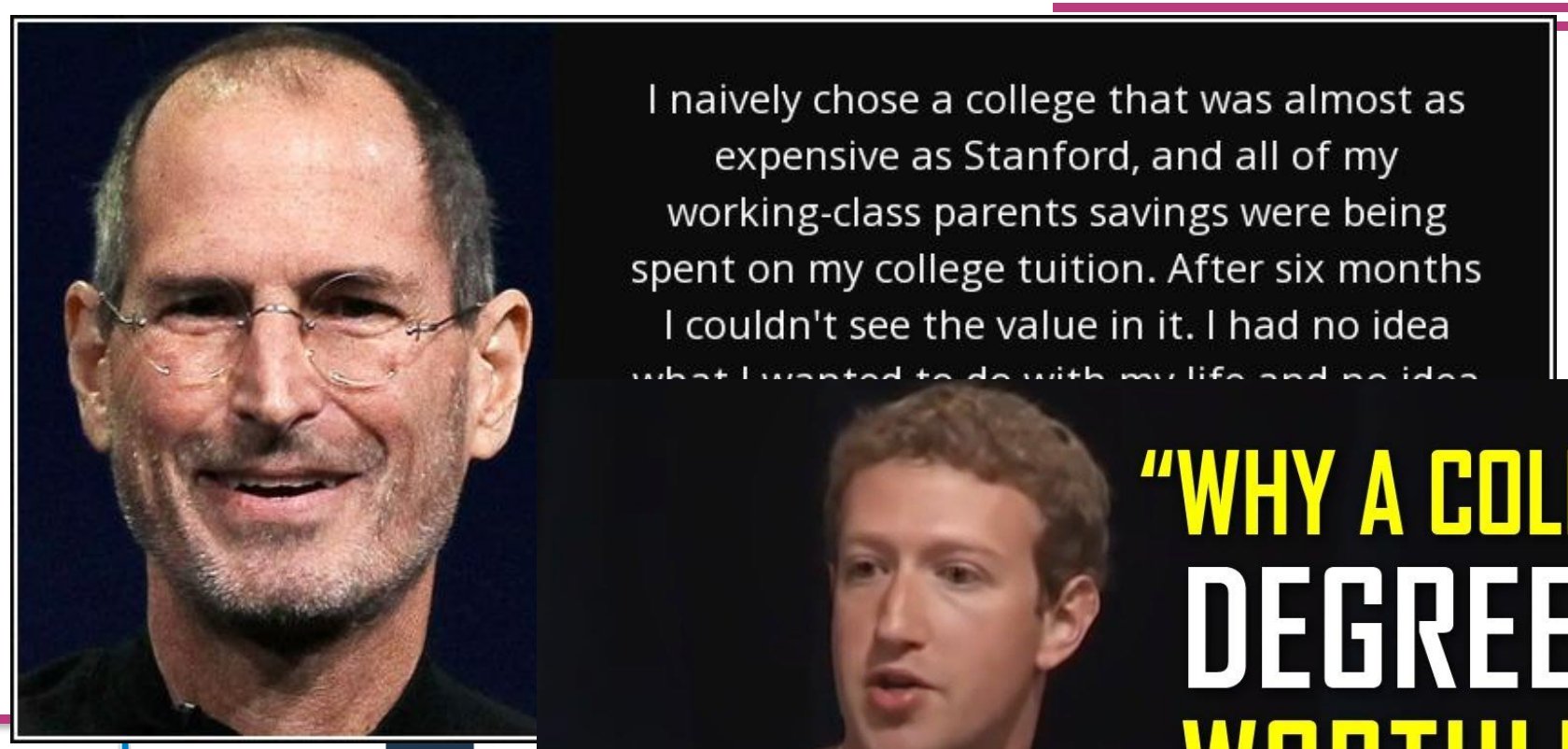
1. Repository of the Knowledge of Mankind: universities must act as 'knowledge warehouses', maintaining and securing crucial knowledge for present and future generations.
2. *Generation of new Knowledge*: to undertake the activity that we call research.
3. *Transferring Knowledge to the Next Generation*, i.e. what we call education.
4. *Transferring Knowledge to Society, i.e. what we call dissemination.*

+ new third (entrepreneurial) role

5. *Generating socio-economic development: to play an integral role in furthering economic growth and thereby pursuing socio economic goals.*

How does the public (entreppreneurs) see (sometimes) universities

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Are these innovators, right about formal education and skills?

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So far: European University models

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- **To bring about change, let us first admit what what kind of education system we have had so far..**
- The European traditional models: a new context at the beginning of the XIX century ... the industrial age: need of qualified professionals: Three different answers
- **The Humboldtian model**
  - Universities as **"factories of science"**
  - State-dependent, public funding
  - State is controlling only managerial matters
  - Professors are civil servants, but "independent"
- **The Anglo-Saxon model**
  - Universities focused on **individual development**
  - Autonomous, but with public funding
- **The Napoleonic model**
  - Universities as **"factories of professionals"**, high-level vocational training
  - State controlling academic and managerial matters
  - Professors are civil servants, members of national bodies

Our theoretical model: The Humboldtian model

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The Humboldtian model

Seminal (ideal) in many countries. Influencing significantly also East Europe and America.

Principles:

1. **Unity of Research and Teaching**
2. **Unity of Teachers and Learners**
3. **Unity of Knowledge**
4. **Freedom**
5. ***Bildung***

Academic autonomy refers to a university's capacity to **manage its internal academic affairs** independently.

Individual development **does good to society indirectly** without specifically intending to do so.

The Humboldtian model

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1. **Unity of Research and Teaching:** teaching and research should go hand in hand, both the teacher and students are learning together... professors are expected to do research as a normal part of their duties.
2. **Unity of Teachers and Learners:** knowledge is not a fixed quantity to be delivered, but rather a process, a form of thinking. The personal relationship between staff and students is contributory to the educational process. *Beide sind für die Wissenschaft da*. Community is democratic because neither the professors nor the students can be regarded as having a monopoly of knowledge.
3. **Unity of Knowledge:** all branches of knowledge admit of one unified spirit bound together by reason. The whole can be seen in the part and the part in the whole, knowledge in its organic integrity. **Philosophy is the supreme integrative discipline** that embraces nature and history, the empirical and the speculative **(that is why Ph.D)** The PhD came to Britain from Germany.
4. **Freedom:** for students, independence from family and state. Staff need research **time** and **"solitary freedom"** *(Einsamkeit und Freiheit).* Staff: they should be free to teach according to their area of academic expertise and view of **"truth"**. The university as a collection of self-educating individualists.
5. ***Bildung*** the aesthetic and the ethical, the development of the whole personality. *Bild* = picture; concept of developing character as though the human were a free-standing work of art, beauty (beautiful minds).

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Research and education

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Other models:

Higher education institutions with a primary goal of education

Fachhochschule (Universities of Applied Sciences and Arts) in 1970s:

- focusing on vocational and professional education;
- making closer links between higher education and employment;
- to boost innovation in the educational sector;
- science-based yet application-oriented education;
- active in industrial research,
- Bachelor and master degrees mostly

Current trends: research universities

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- Current thinking 'first class university' means first class research institution.
- **A research university** is is committed to research as a central part of its mission (origin in Germany). *Slogan: publish or perish*.
- Courses are more academic than vocational, do not prepare students for particular careers. But many employers value research universities because of skills such as critical thinking (transferable skills).
- **Features:** presence of pure and applied research, delivery of research-led teaching, high proportion of postgraduate research programmes, high levels of external income, an international perspective.
- **American model of research universities:** five colonial (before USA) (Harvard, Yale, Pennsylvania, Princeton, and Columbia), five state (Michigan, Wisconsin, Minnesota, Illinois, and California) and five private institutions framed from their inception as research universities (MIT, Cornell, Johns Hopkins, Stanford, and Chicago)

Hm, is higher education **public** (ensuring equal opportunity, benefits for society) or **private** (benefits individuals) **good**?

high quality universities are old

Current trends: Entrepreneurial universities

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- **A third mission** (entrepreneurship and technology transfer) - unevitable
- **The cut-off resources** from the government and increasing competition for research funds and skilled students - universities under pressure to reconsider the way they function and activities portfolio.
- Universities have extended their role as core actors within **regional innovation ecosystems,** opportunities for effective knowledge transfer. Within **triple helix system** (University-Industry-Government), universities act as a generator of knowledge and also as a channel between government and industry.
- **Specialised infrastructure** - technology transfer offices (TTOs), science parks and incubators at universities - an interface between the diverse stakeholders as well as to accomplish a third entrepreneurial mission. Easily measurable university-industry **(U-I) interactions** such as patenting, licensing and generation of spin-off companies.

everything changes

- That was academic entrepreneurship and now... **entrepreneurial teaching** as the promotion of entrepreneurial skills, innovation, social well-being and human capital formation.

PAST – PRESENCE: Finally, we want make change happen in EDUCATION: the past (250 years ago) and today. Obedience of students or freedom of education?

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- Discipline first
- the teacher is always right
- kneeling on your knees
- hands behind your back





Statements, questions:
Should children/students be happy at school/HEI?
Teacher authority is essential
Knowledge and discipline
Or ? We as teachers, enablers, leaders, servants?

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Entrepreneurship: challenges for universities

Entrepreneurship not only creation of a business, but represents a way of life and thinking;

***Entrepreneurship* is a dynamic process of vision, change, and creation.** It requires an application of energy and passion towards the creation and implementation of new ideas and creative solutions.

Essential ingredients include (Kuratko & Hodgetts, 2004, p. 30)

- the vision to recognize opportunity where others see chaos, contradiction, and confusion.
- the willingness to take calculated risks—in terms of time, equity, or career;
- the ability to formulate an effective venture team;
- the creative skill in gathering needed resources;
- fundamental skill of building solid business plan;

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Expert presentation

Johannes Braith

CEO and Co-founder of Storebox Ltd.

“Supporting students’ becoming entrepreneurs”

10.15-10.45

Entrepreneurship: challenges for universities

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- Entrepreneurship is about seeking opportunities, taking risks beyond safety, and persevering to pursue ideas. Such an "entrepreneurial perspective" can be developed in individuals (both teachers and students).
- !!!We are not (only) speaking about starting businesses. This perspective can be manifested in or out of an organization, in for-profit or non-profit ventures, and in entrepreneurial or non-entrepreneurial activities to pursue creative ideas.
- **Entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social.**
- Thus, **entrepreneurship is an integrated concept** that penetrates the activities of an individual in an innovative way.

Are we entrepreneurial, change makers?

CHANGE: challenges for universities

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Opening academic world: supporting interdisciplinarity, creativity, inclusion and interconnection not ony triple helix (academia, firms and government), but also with citizens and media.

Entrepreneurial education is not just about teaching students to set up businesses, but more importantly about sparking and encouraging students' initiative and innovation.

We need specific **infrastructure and resources** apparently.

Are our **teachers** able to change and develop entrepreneurial education; especially if they have never been entrepreneurs themselves and have only experienced education through transferring **ready-made knowledge**?

Will **you** discover the entrepreneurial perspective in yourself, will you "revolutionize education" for your students?

Do you have the ideas, the initiative, will you **take the risk** to approach your colleagues and propose and enforce change at your university?

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Strategies of awareness raising about EE in students and teachers:

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What is happening?

- Universities are moving away from the Napoleonic or Humboldtian model towards an Anglo-American model and view of education.
- Entrepreneurship is taught in science, engineering and technology subjects, of course in business schools and as part of Curricula (see Levenburg et al. 2006)
- Passing on our knowledge through lectures alone is not enough. Teacher individuality is essential, but discovery, challenge-based learning, project learning, orientation increasingly towards skills (of the future)
- Students are educated to become entrepreneurs as professionals or to become entrepreneurs (at some point in their lives).
- Source of ideas: OECD Guiding Framework for Entrepreneurial Universities

Strategies of awareness raising about EE in students and teachers:

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- Universities are moving away from the Napoleonic or Humboldtian model towards an Anglo-American model and view of education.
- WHY? Given the rapidly changing labour market requirements in a global market economy, universities need to provide higher education that meets the (still unclear) requirements of future occupations.

- Therefore, curricula are changing in order to equip students with entrepreneurial competences
  - to use new technologies, to be able to access new markets, to develop new products, to practise business management and thus to be well prepared for entrepreneurship.
  - To foster students' entrepreneurial spirit in particular in the field of science and technology, contributing to added values for society and/or the economy.

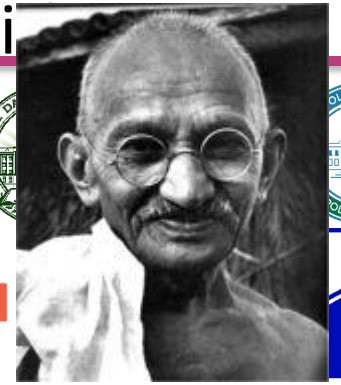
CHANGE: who is about to make change happen?

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"If you want to change the world, start wi
yourself."



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Entrepreneurial education: knowledge sources

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Sources are important.. not the old model one course – one (my) textbook

- Academic journals
- Textbooks on entrepreneurship
- Books about entrepreneurship - “how-to” guides
- Biographies or autobiographies of entrepreneurs – Steve Jobs, etc.
- News periodicals, Forbes, Fortune, ...
- Videos, online courses
- Government publications - information on entrepreneurship, small-businesses.



Expert presentation
Johannes Braith
CEO and Co-founder of Storebox Ltd.
“Supporting students’ becoming entrepreneurs”
10.15-10.45

Entrepreneurial education: how to - environment:

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- Students are exposed to a supportive (learning) environment in which they can take risks, explore responsibility in project (a protected environment, but in the "real" world) and identify entrepreneurial opportunities.
- EE as an incubation of ideas in learning topics
- Consideration of the implementation of the ideas, opportunities and risks, the business plan, defining and obtaining the necessary resources, measuring results and impacts.

- **Examples:**
  - learning on **real datasets**
  - **investing** on real stock prices,
  - collecting **ideas for solutions** for the city's public space,
  - **hackathons** on university, urban mobility, digital innovations,
  - **design sprints** (a day or multiple days for answering critical business questions through design, prototyping, and testing ideas with customers),
  - **living labs** (co-creation, rapid prototyping & testing and scaling-up innovations & businesses),
  - **crowdsourcing** data and solutions for technical or economic problems

And hence – what infrustructure, people, resources, equipment, tools we need for EE?

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So far: European University models

- The Humboldtian model
- The Anglo-Saxon model
- The Napoleonic model







morning wake-up

1. What model is applied in your country?
2. How functional is our model?
3. Are we transferring the approach we experienced as students (path dependence) or are we educating in a different (modern, entrepeneurial) way?

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Group work: My university- infrastructure, resources, environment needs in future

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1. **How entrepreneurial is your university already**, has your university turned entrepreneurial over the years?
2. What **specialised infrastructure** is already existing (start-up centre, business incubator, technology transfer office, spin-off or consulting centre, distance education centre, innovation centre, vice-rector for innovation management, etc.)?
3. **What organisational changes have been made** at the university as a result? Is the **mindset of teachers and researchers** changing to be more entrepreneurial? What already works and what doesn't?
4. Explain, reflect, **what is needed** to prepare and implement the **activities and measures** in the university programme to support entrepreneurship education?
   - **internal resources** (e.g. staff, funds, skills, expertise);
   - **infrastructure** (e.g. premises, technical equipment, laboratories, screen, sitting, software,);
   - **external resources** (e.g. networks, funding, collaborative partners),

14.00-15.30 Development of section 5 of D2.2 “University scheme for entrepreneurship education support” presenting the section 5

Effective entrepreneurship education programme preparation

Part I: Raising awareness of entrepreneurship education (EE) in the university

Friday: Activities and measures to enhance entrepreneurship education: Faculty Development

Nataša Urbančíková, Oto Hudec,
Facuty of Economics
Technical University of Košice
Slovak Republic



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Time	Friday, September 23, 2022	Room 2.01
	Activities and measures to enhance entrepreneurship education	
09:00 – 10:30	**Faculty development** – More about EE – Faculty development as an institutional task – Integration of EE courses at the regulatory and organisational level – Enabling and limiting factors - questions	TUKE CA partners
10:30 - 11:00	**Break**	
11:00 - 11:45	**Enabling and limiting factors** Discussion of results of group work	TUKE
11:45 - 12:30	**Standards for quality-based syllabus development** – Plenary discussion	TUKE CA partners
12:30 - 14:00	**Lunch**	
14:00 – 16:00	**The perfect syllabus** – Review of EE course template – Peer reviews of syllabi by partners – Wrap-up: Learnings from syllabus review	TUKE CA partners

Friday content - change

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1. **Theory and practice** - the past pattern of thinking: at university we teach the theory and on placement students learn how it works in practice. Consequence: students complain that they will not need the theories at work, they learn unnecessary things.

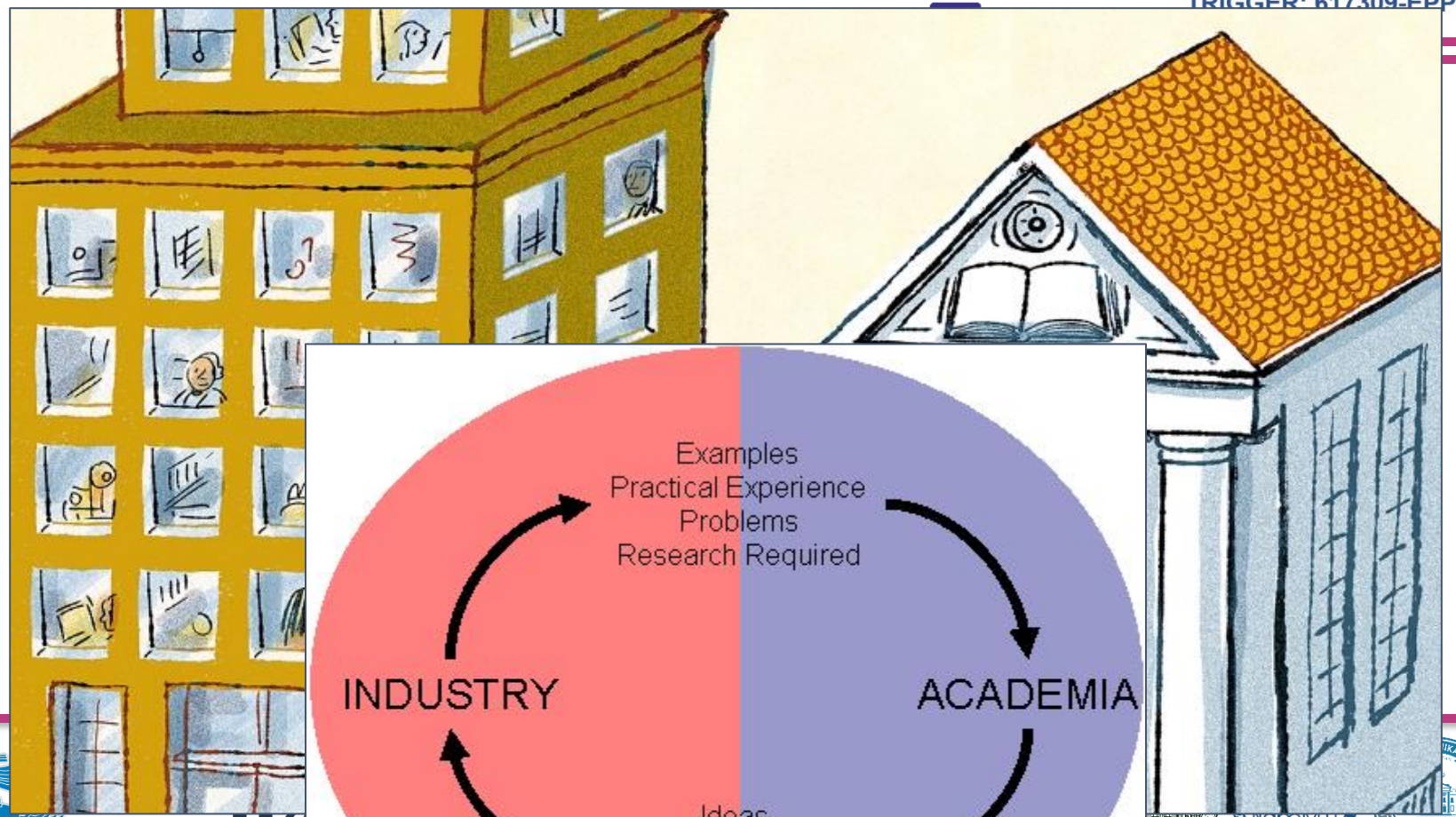
2. **Integration of EE courses** at the regulatory and organisational level: how to enforce institutional and systemic changes?

3. **Enabling and limiting factors** of embedding EE in my university

4. **The perfect syllabus** development

Academia and industry

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Academia and industry and society

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Entirely new models of cooperation with other stakeholders (as well as the local and regional environment)

- **Today:** There is a system of student internships in companies to link education and the world of work. (napoleonic)
- Initiative of companies - junior positions for students during their studies.
- Research and development cooperation between academy and industry sometimes

Theory and practice - two worlds or connected vessels?

- **Place: future:** shift entrepreneurial education more to the university - modify the learning environment, motivate students for initiative learning developing entrepreneurial skills and competences
- linking company and university environments through shared academic centres, facilities, infrastructure
- **The way of change:** role of university in a regional business ecosystem



Plenary discussion: lessons learned
Key elements of good EE environments

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- **Today:** Perception of the labour market as placement of graduates in existing firms:
- **Future:** Raising students' awareness of their own and self-employment and entrepreneurship as much as possible (it doesn't come without risk and self-esteem), plethora of career opportunities;

What are the career opportunities today and in the future?

But the challenge is the employability of students in the future, not the demands of companies today.

Future employability builds on entrepreneurial capabilities.

- **The way of change:** not only the knowledge and skills to fit into the company wheel; (companies may not like it, especially if they want rather efficient and dutiful employees)

Entrepreneurial education - motivating

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- Educators and experts have broken out of the myth that entrepreneurs are born, not made.
- Peter Drucker: one of the most important management thinkers of our time: 'Entrepreneurial mystique? It is not magic, it is not mysterious and has nothing to do with genes. It is a discipline. And like any discipline, it can be learned" (Drucker, 1985).

Can entrepreneurship or certain aspects of it be taught?

What **words** to use when motivating students?

- dream, create, explore, invent, pioneer, imagine!

Entrepreneurial rule:

- Wealth comes directly from innovation, not from optimization or refinement.
- Wealth is not gained by perfecting the known, but by imperfectly exploiting of the unknown.

Entrepreneurial education paims

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- be **inclusive** and support wider participation
- have a positive influence on students' **creativity, flexibility** and the innovation process
- have a positive impact on **behaviour change** and active citizenship
- have a positive impact on **learning attainment** and grades
- significantly improve **stakeholder engagement**
- **demystify** career opportunities and enhance employability
- have a positive impact on positions gained within **employment**
- significantly increase **start-up rates**.

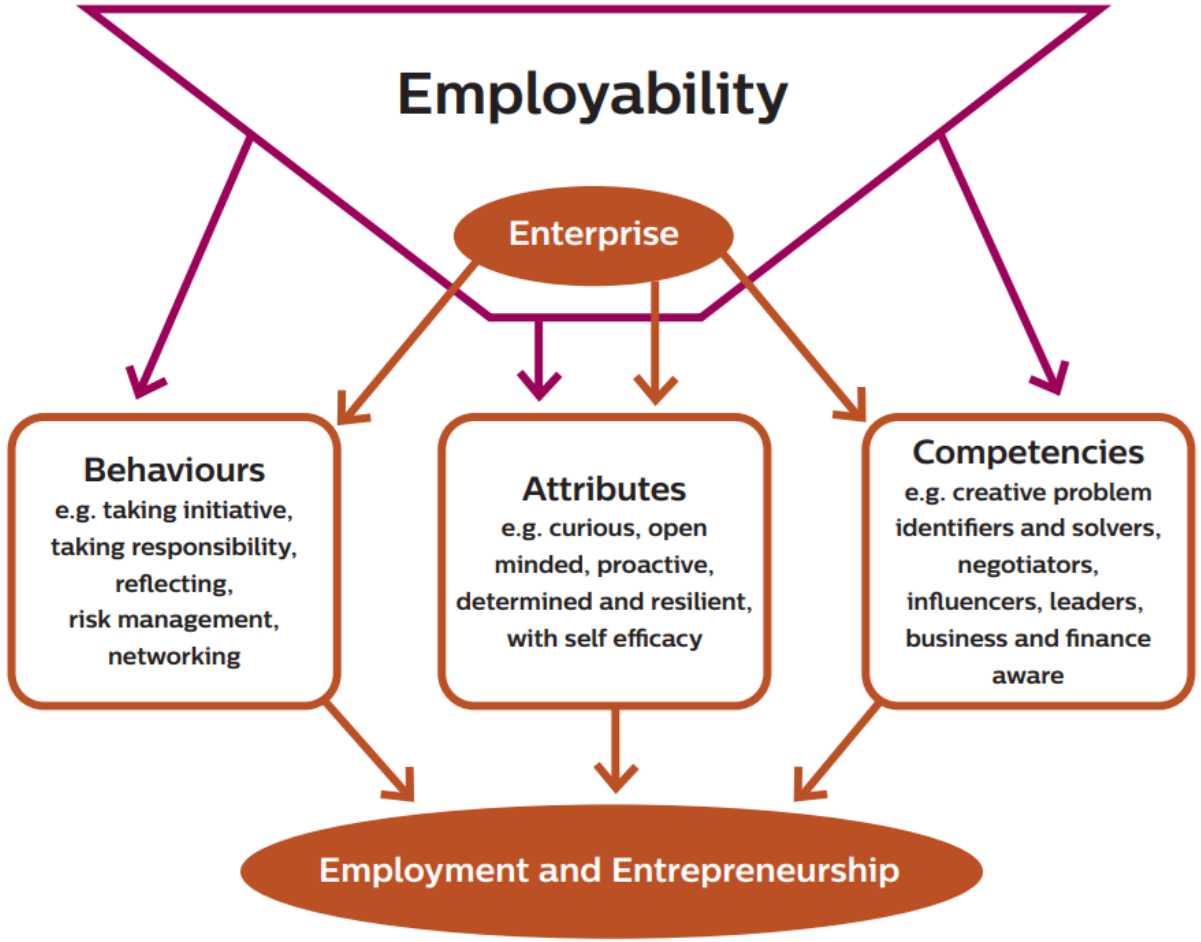
Principles and goals we want to achieve with EE?

- Let us not forget: **Entrepreneurship Education** is defined as the application of enterprise **behaviours, attributes and competencies** into the creation of **cultural, social or economic value.**
- This can, but does not exclusively, lead to venture creation.

Source: Enterprise and Entrepreneurship Education: Guidance for UK Higher Education Providers 2018

Through employability to employment and entrepreneurship

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Entrepreneurial education increase **employability** through building behaviours, attributes and competencies

What is the output of EE - the personality of a student

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Students should be **encouraged to develop**

- self-awareness of their own enterprising and entrepreneurial capabilities,
- the motivation and self-discipline to apply these flexibly in different contexts to achieve desired results
- recognising themselves as a person who is creative or resourceful;
- who can translate ideas into actions;
- who is prepared to challenge assumptions through critical investigation/research.

Entrepreneurial education focus on skills, attributes, behaviours, competencies

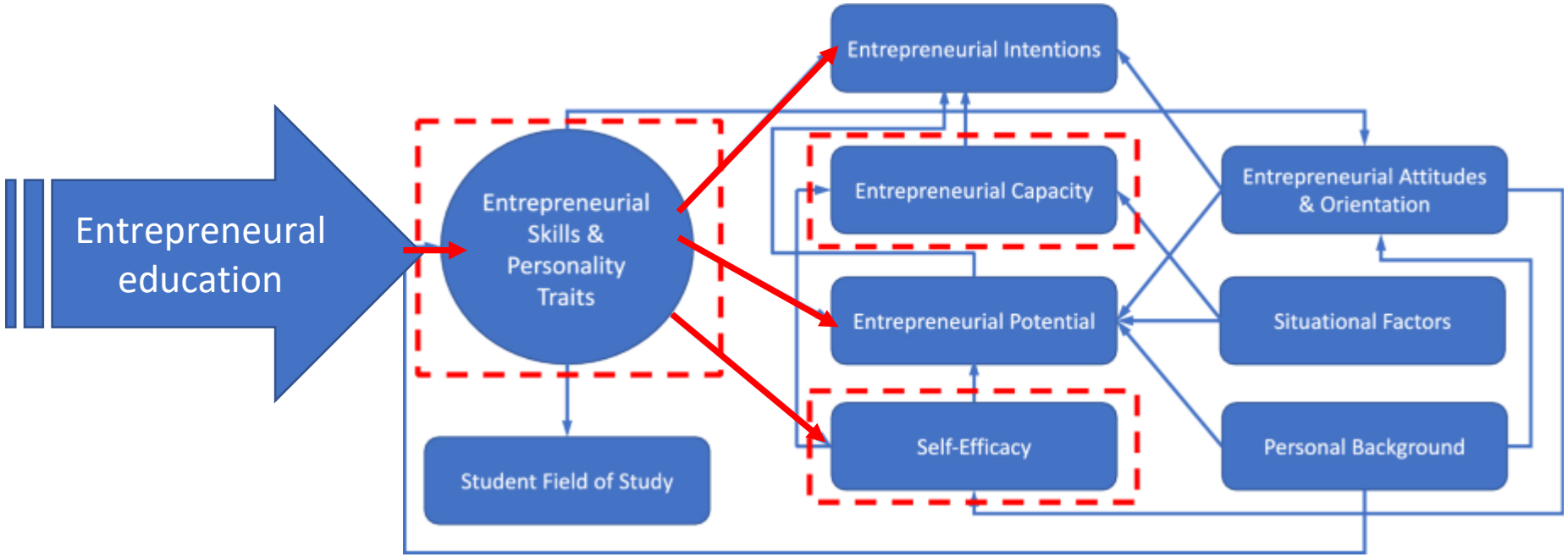
Developing an **entrepreneurial mindset**:

- self-aware of personality and social identity
- motivated to achieve personal ambitions and goals
- self-organised, flexible and resilient
- curious towards new possibilities for creating value
- responsive to problems and opportunities by making new connections
- able to go beyond perceived limitations and achieve results
- tolerant of uncertainty, ambiguity, risk and failure
- sensitive to personal values, such as ethical, social, diversity and environmental awareness

The goal of our efforts are skills, personal qualities

What is the output of EE - the personality of a student

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Where we are and where we operate with entrepreneurial education

The personality of the entrepreneurial educator

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Entrepreneurial educator attributes

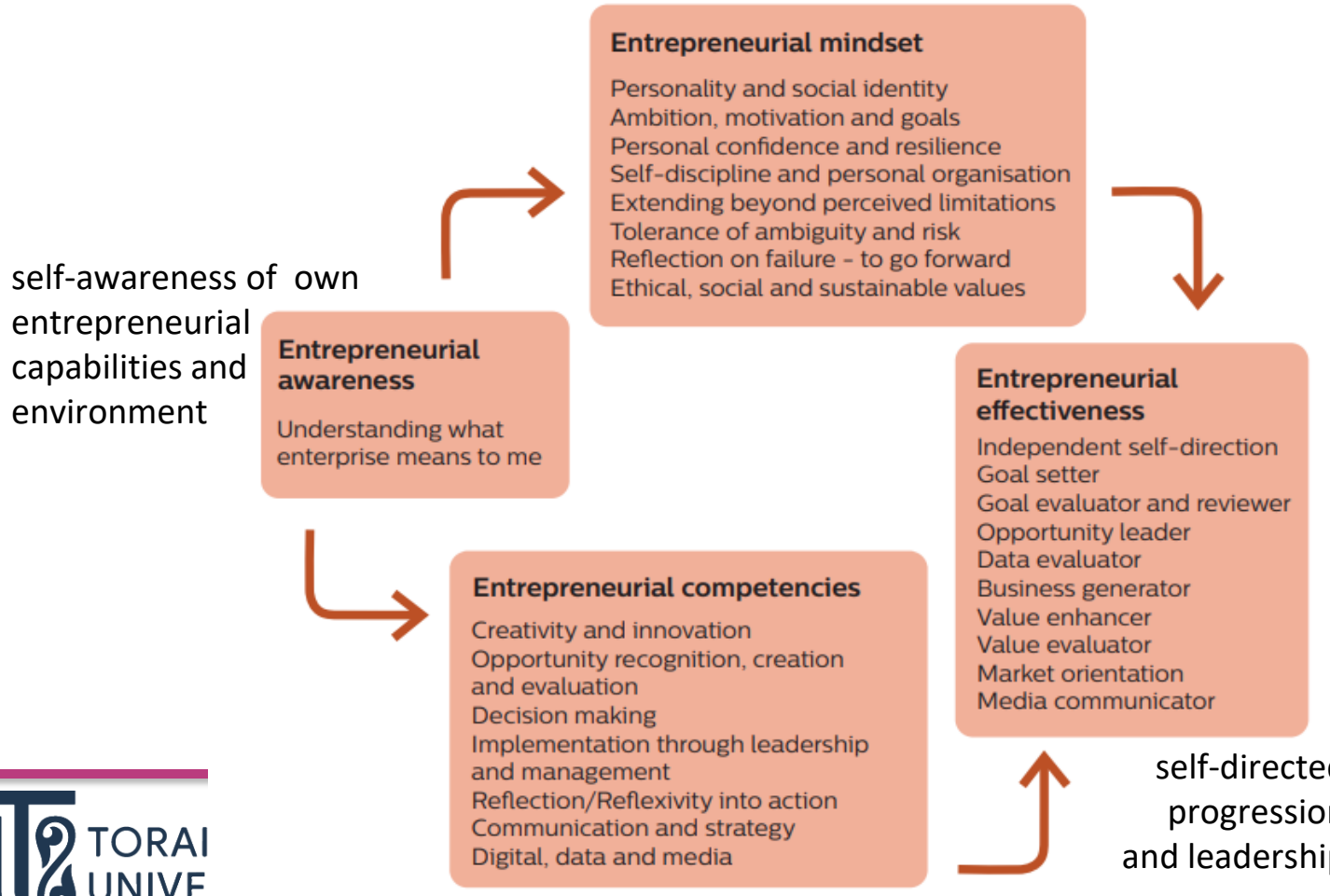
- **Inclusive leadership:** encouraging entrepreneurial behaviour in students and colleagues - by creating and shaping appropriate learning environments.
- **Innovative:** experimenting with different pedagogies, activities, learning tasks and assessments to motivate and inspire students,
- **Enterprising:** in their approach to exploiting new opportunities for enhancing the student experience.

What is the personality of an entrepreneurial educator

- **Reflective:** a practitioner who regularly reviews, evaluates and improves their teaching practice to the benefit of their students, their institution and themselves.
- **Engaging:** working with enterprising people, entrepreneurs, innovators, organisations and other stakeholders in the learning experience.
- **Enabling:** students to relate their learning to their subject, and personal and professional aspirations.
- **Relevant:** maintaining the relevance of provision, able to link to current trends and needs. (This may be particularly applicable to vocational subjects or those with embedded work-based learning or placements.)

The journey towards entrepreneurial effectiveness

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Students' learning may not be linear, their journeys are likely to have diverse starting points and transition into the future, they may pass through different stages in an iterative fashion, or engage simultaneously in different learning experiences

Institutional task

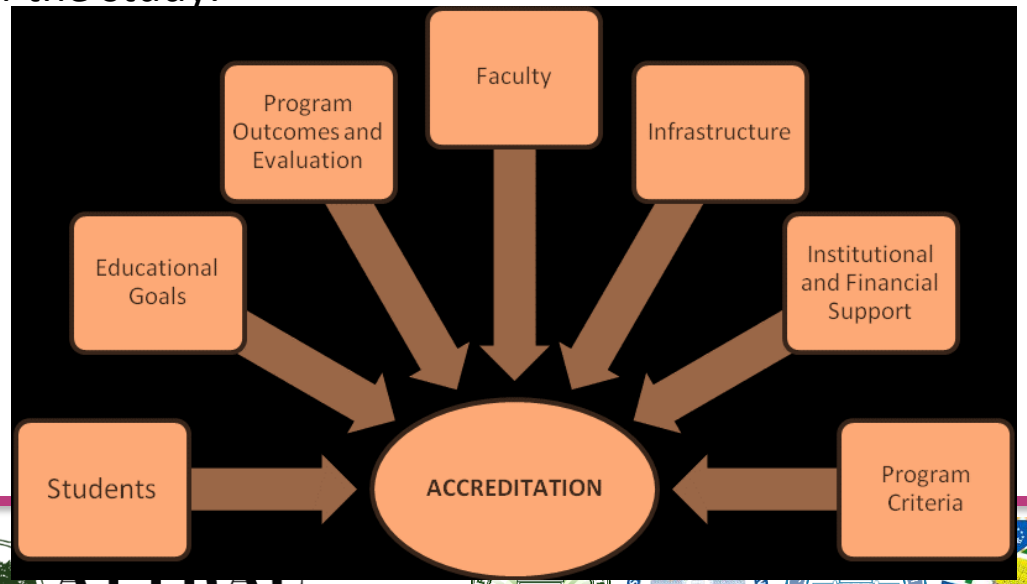
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Behaviours, attributes, competences are developed in individual courses and

- need to be linked,
- to have an appropriate order
- to support and complement each other

leading to the final outcome at the end of the study.

How to make the system work?



Shaping the curriculum in a new way and requiring joint **commitment**, discussion, ideas, creation, organisation, experimentation, training of teachers, successful accreditation and subsequent implementation.

Entrepreneurial development in teaching and learning (HEInnovate principles)

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1. The HEI provides **diverse formal learning opportunities** to develop entrepreneurial mindsets and skills (new pedagogies, student-centred, cross-disciplinary and practice-based learning (e.g. living labs, the use of case studies, games and simulation).

2. The HEI provides diverse **informal, extracurricular learning opportunities** and experiences to stimulate the development of entrepreneurial mindsets and skills (networking events, competitions, entreprise clubs, start-up centres, - everything formaly recognised).

Signs if entrepreneurial teaching and learning works

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

4. Entrepreneurial behaviour is supported **throughout the university** experience; from creating awareness and stimulating ideas through to development and implementation.

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4. The university validates **entrepreneurship learning outcomes** (codify the expected entrepreneurial learning outcomes in relation to knowledge, skills and competences and recognise in the records of the students' achievements in all degree programmes).

5. The HEI co-designs and delivers the curriculum with **external stakeholders** (provide a mechanism for staff to work with external stakeholders, a diversity of collaborative

Signs if entrepreneurial teaching and learning works

6. Results of entrepreneurship research are integrated into the entrepreneurial education offer (forum of new ideas, latest research, sharing good practises, encourage staff and educators to review the latest research in entrepreneurship education).

Evaluation and quality assurance – EE study programme

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- The study programme is developed in accordance with the mission and **strategic goals of the HEI**, as defined in **the long-term p**lan of the college.
- **The persons responsible** for the implementation, development and quality assurance of the study programme are identified.

The preparation of a new or conversion of an existing study programme requires the fulfilment of quality criteria and is subject to accreditation by an external institution.

- A proposal for a new study programme or a proposal for the modification of a study programme is elaborated and submitted in accordance with the **formalised processes of the internal assurance system** of the higher education quality assurance system of the HEI and the country.
- **Flexibility in learning trajectories** and the achievement of learning outcomes is enabled.
- The study programme allows for relevant learning outside the HEI in the home and international institutions, in particular through the promotion of mobility.

Group-work -

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Who is supposed to be a driving force?

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- QUESTION WHO: at an entrepreneurial university, entrepreneurship is a systematic approach and people should feel committed to this goal. There is a need for opinion leaders who would promote change from within the institution.
- 0- certainly no ..... to 10 surely without a doubt

The rector	0	1	2	3	4	5	6	7	8	9	10
The vice-rector	0	1	2	3	4	5	6	7	8	9	10
Faculty deans	0	1	2	3	4	5	6	7	8	9	10
Heads of deparments	0	1	2	3	4	5	6	7	8	9	10
Study programme coordinators	0	1	2	3	4	5	6	7	8	9	10
Professors	0	1	2	3	4	5	6	7	8	9	10
Young assitents and docents	0	1	2	3	4	5	6	7	8	9	10
Ministry of education	0	1	2	3	4	5	6	7	8	9	10
Start-up or innovation centre	0	1	2	3	4	5	6	7	8	9	10

- Or - the first step could be to designate a responsible person, as only the decision maker can decide on the results.
- Or an international project?

Group-work: integration of EE courses at the regulatory and organisational level

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How to enforce institutional and systemic changes?

Ten important steps to implement the EE programme at my university (how to):

(the first important steps, responsibility, accreditation, long-term plan, training of staff, environment, resources, infrastructure, marketing, quality assurance, engagements of stakeholders, changes in study organisation, administration, course preparation and changes, allowing flexibility of trajectories, persuading colleagues, financial resources, international involvement, leadership, designing indicators,...)

1.....

2.....

...

10.....

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Limiting factors, problems, challenges?

Which are the main limiting factors, problems, challenges to prepare and implement the EE programme:
(where the biggest problems become apparent)

Presentation: 11.00-12.30