

Cross Border Virtual Incubator (CBVI)

Optimising the entrepreneurship ecosystem



LIFELONG LEARNING PROGRAMME

ERASMUS MULTILATERAL PROJECT

COOPERATION BETWEEN UNIVERSITIES AND ENTERPRISES

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The importance of entrepreneurship and incubation

The potential of European higher education institutions to fulfill their role in society and contribute to Europe's prosperity remains underexploited. While 35% of all jobs in the EU will require high-level qualifications by 2020, only 26% of the workforce currently has a higher education qualification. Europe will only resume growth by producing highly skilled workers who can contribute to innovation and entrepreneurship. The knowledge economy needs people with the right mix of skills : transversal competences, e-skills for the digital era, creativity and flexibility and a solid understanding of their chosen field. But public and private employers, including in research intensive sectors, increasingly report mismatches and difficulties in finding the right people for their evolving needs. Youth unemployment is approaching 23% across Europe and at the same time we have over 2 million unfilled job vacancies. The knowledge economy continues to increase demand for higher skills but more than 70 million Europeans have only low or no formal qualifications. By 2020, 20% more jobs will require higher level skills. Education needs to drive up both standards and levels of achievement to match this demand, as well as encourage the transversal skills needed to ensure young people are able to be entrepreneurial and adapt to the increasingly inevitable changes in the labour market during their career.

This highlights a serious weakness in our education and training systems. Efficient investment in education and training is fundamental to this. There is a strong need for flexible, innovative learning approaches and delivery methods for improving the quality and relevance of higher education. It is essential that Member States create flexible options, such as high quality distance learning. Widening access and engagement through Open Education is a necessity. One key way of achieving this is to exploit the transformational benefits of ICTs and other new technologies. Technology will play a crucial role in this.

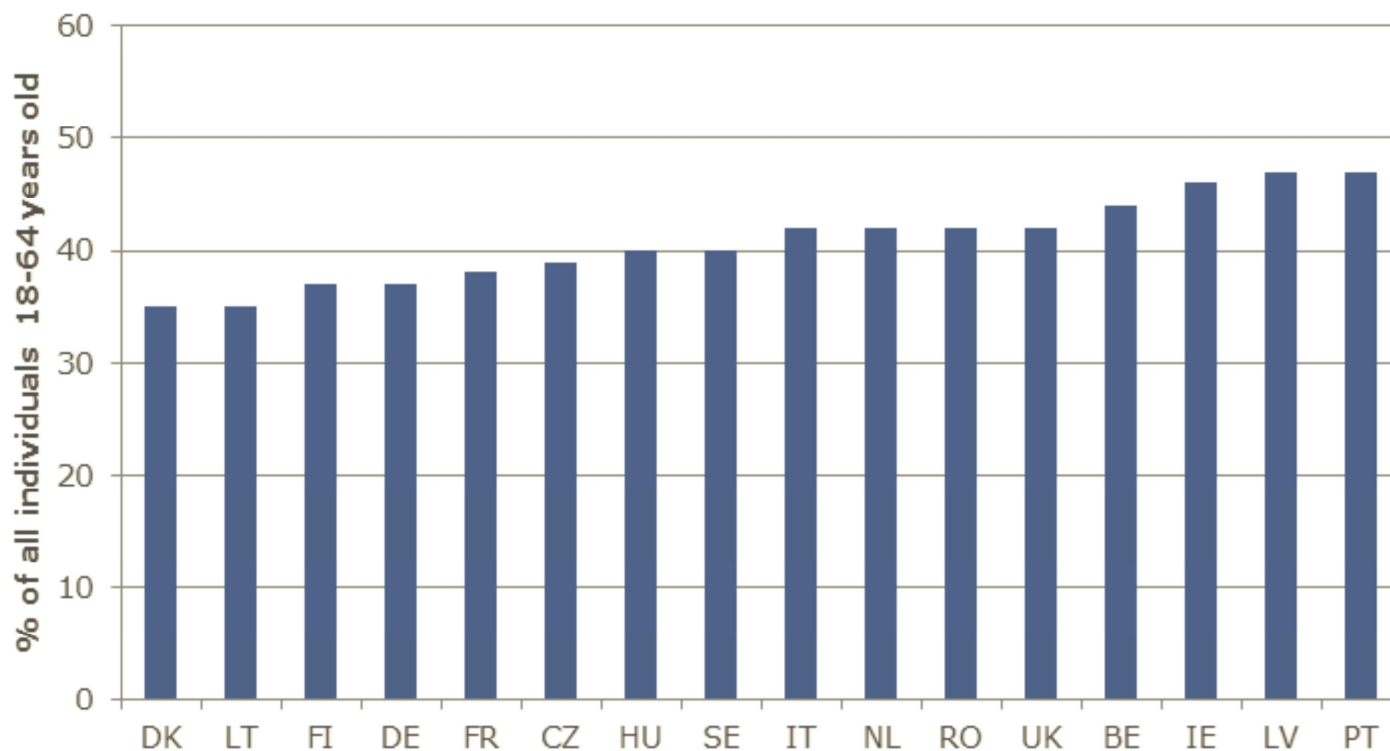
Efforts should, among other, be concentrated on

1. developing transversal skills particularly entrepreneurial skills.
2. promote knowledge-intensive entrepreneurship building
3. promoting work based learning including quality traineeships, apprenticeships and dual learning models to help the transition from learning to work

Entrepreneurship education should be prioritised.

One key policy issue for Member States and higher education institutions is to stimulate the development of entrepreneurial, creative and innovation skills in all disciplines. Attention should be particularly focused on the development of entrepreneurial skills because they not only contribute to new business creation but also to the employability of young people. The overall goal of entrepreneurship education is to give students the attitudes, knowledge and skills to act in an entrepreneurial way, for either a commercial or non-commercial objective. Key Competence Framework states that the entrepreneurship key competence refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk taking, as well as the ability to plan and manage projects in order to achieve objectives.

Results from a 2011 survey on entrepreneurship education show that 23 EU Member States have current strategies or on-going initiatives addressing the implementation of entrepreneurship education into general education at primary and/or secondary level. Most Member States have strategies or on-going initiatives addressing the implementation of entrepreneurship education into general education at primary and/or secondary level, yet only in a quarter of member states did a majority of adults believe they had the right skills and knowledge to start a business (education and Training Monitor 2012)



Percentage of individuals aged 18 to 64 who believe to have the required skills and knowledge to start a business, 2011

Source: Global Entrepreneurship Monitor 2011 Note: Italian result is from 2010.

However, at the national level only six Member States have a specific strategy for entrepreneurship education (Eurydice, 2012). The most important change in the testing of transversal competences has been the increase in the number of countries that test social and civic competence (from 4 in 2008 to 11 in 2012).⁷ By contrast, digital competence and entrepreneurship continue to be left out.

Consequently, entrepreneurship needs to be introduced early, and included at all levels and in all disciplines of education and training. The fourth long term objective of ET 2020 is to enhance creativity and innovation, including entrepreneurship, at **all levels** of education and training. The objective of Cross Border Virtual Incubator (CBVI) is to flexibly reach out to workers & learners to

promote entrepreneurship and enterprise creation. It focusses on the role of **higher education institutions** in cooperation with business.

Knowledge-intensive entrepreneurship building

The contribution of higher education to jobs and growth, and its international attractiveness, can be enhanced through close, effective links between education, research and business. Responsibility to deliver the right skills for the labour market must be shared between businesses, educational providers and other stakeholders, including students. Working across the boundaries of research, business and education requires in-depth scientific knowledge, entrepreneurial skills, creative and innovative attitudes and intensive interaction between stakeholders to disseminate and exploit knowledge generated to best effect. Through a wide series of pilots CBVI has effectuated far reaching pilots on (networked) business planning (first series of pilots) and on versatile field coaching of new entrepreneurs (second series of pilots).

Promoting work based learning

The “Rethinking Education” Communication supports the Member States by identifying a range of issues relevant for improving the efficiency of education and training systems. Recent Cedefop data shows that, at the medium level, European VET graduates are more successful than candidates from general education in finding employment . This applies in particular to graduates from VET programmes with strong workplace orientation. Countries with strong and attractive VET systems, and notably those with well-established apprenticeship systems, tend overall to perform better in terms of youth employment.

The value of work-based learning – and notably of apprenticeships or "dual training" systems – in facilitating youth employment and increasing economic competitiveness is clearly recognised. Despite this, the supply of apprenticeship and traineeship places in the EU remains under-developed. The picture varies greatly by country. Efforts are needed to invest in expanding the offer of apprenticeships and traineeships in countries where opportunities for this type of learning remain very limited.

Work-based learning should be part of courses as is already is the case in many initial VET courses, ensuring that young people have the knowledge, skills and competences they need for a successful first step into the labour market. Companies should be engaged as training providers, together with HEI or other education/training institutes. Many of the first and second series of pilots of the CBVI project have shown that this is / can be reality for higher educational institutions. However, the approaches are very divers, both on organizational point of view, the didactical and pedagogical approach (of work-based learning), the actors involved and their involvement of different actors.

Role of ICT and online

All sectors in society are affected by innovations, based on ICT. Universities have felt a lot of fear of commitment for online education, but today we seem to face a breakthrough. Tomorrow “online” will be an organic part of teaching and learning and higher education systems with a diversity of solutions. Because of its promising potential, online education will increasingly affect all educational activities of a university. The accessibility and flexibility, brought by the use of ICT and new media, will create new educational activity areas, which are entirely internet-based or to a large extent blended. With ICT, universities can create high quality borderless education. For the digital generation it is their natural environment. New technology will contribute to strategic partnerships and knowledge alliances, to new types of curriculum collaboration and related mobility and will increase the importance of ‘virtual’ and ‘online’. Already virtual business games, work-based learning by virtual means (virtual projects, virtual companies) and virtual demonstration centres are used to enhance entrepreneurship.

Virtual Incubation is gaining strategic importance through equipping students and workers with skills necessary for changing jobs as well as for entrepreneurship. Cross Border Virtual Incubator (CBVI) flexibly reaches out to workers and learners to promote entrepreneurship and enterprise creation. It has the objective to demonstrate experiments with social and learner-centric entrepreneurship environments for the acceleration of new starters and cross border knowledge exchange.

CBVI project and optimising the entrepreneurship ecosystem

The **CBVI project** addresses this issues by **focusing** on

- stimulation of entrepreneurship
- related at the role of higher education institutions in cooperation with business (including Knowledge-intensive entrepreneurship building and promoting work based learning)
- aimed at the incubation process
- by the use of virtual environments
- using the potential of cross border opportunities

The main question is *How should Entrepreneurship be supported by ICT technologies with the maximum gain?*

To tackle this main question the CBVI projects has executed five sequential steps

1. Cross-analysis of entrepreneurship and incubator models (WP2)
2. Organisation of learner-centric entrepreneurship environment (WP3)
3. First pilots series: networked virtual business planning (WP4)
4. Second pilot series: versatile field coaching of new entrepreneurs (WP5)
5. Optimising the entrepreneurship ecosystem regional and cross-regional (WP6)

All previous steps (1-4) contribute to final step (5).

This document “Optimising the entrepreneurship ecosystem” summarizes the efforts of the CBVI project and translates them to recommendations for optimising the entrepreneurship ecosystem. The main focus is on entrepreneurial ecosystems or in particular on university-based entrepreneurial ecosystems (because of their heterogeneity). To this end our results and recommendations are split into three parts.

- a) Current research status and based approaches
- b) Results out step 1 to 4, including the diversity of pilots in steps 3 and 4
- c) Extra data-collection by exploratory study with the help of questionnaires and expert interviews

Concept of the Entrepreneurial Ecosystems

Until quite recently economic politics was mainly aimed at supporting large and established companies and the related clusters because it was assumed that such structures were seminal for a stable and sustainable future. However, reality came along with several crises and revealed the weaknesses of such regional economies. For a healthy economic climate it is important that young and innovative companies exist as well because due to their flexibility and innovative power they can react to a changing environment faster and are therefore less prone to crises. In addition, young companies also contribute considerably to the employment rate of a region.

Entrepreneurship as a young but independent scientific discipline deals with innovations, start-ups, and corporate growth and has been put at the core of many development programs over the past years. Support of entrepreneurial thinking and acting is the aim of economic politics in many cities. While entrepreneurship is not a universal remedy for all challenges in economic politics, it still paves one way towards economic growth and thus to social welfare.

Insights from the Literature Analysis

Although the topic of entrepreneurial ecosystems has gained increasing attention recently, there are few contributions yet which explicitly investigate entrepreneurial ecosystems. While the term is used more and more frequently, it must be stated that there is no reliable definition and that the term is used in many different contexts. In the literature, a variety of definitions of Entrepreneurial Ecosystems can be found, for example:

- Entrepreneurship Ecosystems are environments that nurture and sustain entrepreneurship. [They] consist of a set of individual elements – such as leadership, culture, capital markets, and open-minded customers – that combine in complex way. (Isenberg 2010)
- Entrepreneurial system is the complexity and diversity of actors, roles, and environmental factors, that interact to determine the entrepreneurial performance of a region or locality (Spilling 1996)

- Entrepreneurial environment is a combination of factors that play a role in the development of entrepreneurship. (Gnyawali and Fogel 1994)
- Entrepreneurial Infrastructure facilitates and constrains entrepreneurship (Van de Ven 1993)

In summary, the definitions listed above allow us to conclude that an entrepreneurial ecosystem comprises anything and anyone which/who is of relevance for entrepreneurship and its development in any way. We will try to elucidate the complexity and opaqueness of the term in the following chapter from different perspectives by using three selected models.

Entrepreneurial Ecosystem: Three different approaches

As indicated, this section will deal with different perspectives on the definition of entrepreneurial ecosystems. We chose the models developed by Valdez (1988), Gnyawali and Fogel (1996), and Neck et al. (2004) as examples here which focus on the entrepreneurial personality, the entrepreneurial process, and the entrepreneurial development of a region respectively.

Focus on „Entrepreneurial Personality“

Literature research shows that the term „Entrepreneurial Ecosystem“ was explicitly mentioned as early as 1988. Jude Valdez used it in his article „The entrepreneurial ecosystem: Toward the theory of new business formation“ in order to explain the phenomenon of start-ups. According to Valdez (1988), start-ups can be defined as the result of the relations of potential entrepreneurs, their immediate environment and current market circumstances. A potential entrepreneur is a complex personality who has a certain educational background, a certain attitude towards risk, an alertness with regard to opportunities, financial resources etc. at his disposal. The entrepreneurial environment comprises many several circumstances and influences the entrepreneurial decision of the potential entrepreneur. With regard to the components of an entrepreneurial environment Valdez refers to the work by Bruno and Tyebjee (1982), who summarized the most cited factors of an entrepreneurship-friendly environment. Among the environmental factors which influence the entrepreneurial decisions of potential entrepreneurs are the following:

Venture capital availability	Proximity of universities
Presence of experienced entrepreneurs	Availability of land or facilities
Technically skilled labor force	Accessibility to transportation
Accessibility of suppliers	Receptive population
Accessibility of customers	Availability of supporting services
Favorable governmental policies	Attractive living conditions

An outline of Valdez’ model (1988) is given in figure 1.

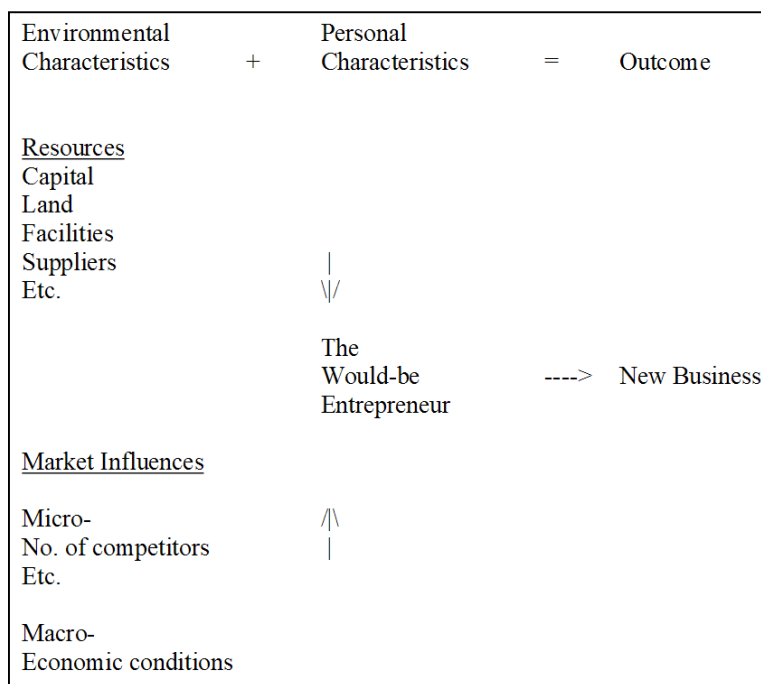


Figure 1: Entrepreneurial Ecosystem Model

Source: Valdez 1988

In sum, the model’s statement is that a person becomes the more likely to actually start a business the better a region is equipped with entrepreneurship-friendly features, the more „entrepreneurial“ the future entrepreneur is and the more favorable the market situation is.

Focus on „Entrepreneurial process“

Another interesting perspective on the entrepreneurial ecosystem is presented by Gnyawali and Fogel (1994) in their article „Environments for Entrepreneurship Development: Key Dimensions and Research Implications“. Here the authors develop a theoretical framework which categorizes the environmental factors in five dimensions and links them with the five core elements of the start-up process, which, according to the authors’ literature findings, comprise entrepreneurial opportunity, ability to enterprise and propensity to enterprise (cf. figure 2).

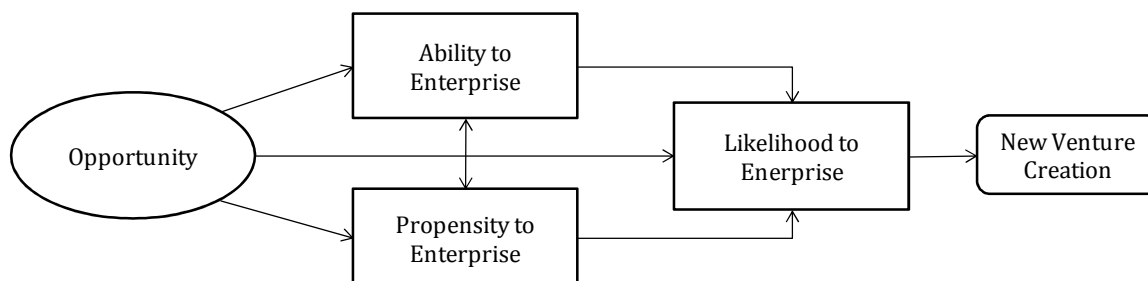


Figure 2: Core elements of new venture creation

Source: Gnyawali and Fogel 1994

Gnyawali and Fogel (1994) analyze the start-up process in the following way: In the first place, there has to be an *entrepreneurial opportunity*. Second, the founder person needs to be able to recognize

this opportunity and sufficiently self-confident to start and manage a company (*propensity to enterprise*). Third, the entrepreneur must have economic and technological knowledge at his/her disposal which is needed for starting and running a business (*ability to enterprise*). If these three conditions are fulfilled, it becomes more likely that the respective person will actually start a business.

The start-up process does not take place in a vacuum but is embedded in a framework of environmental factors. Gnyawali and Fogel (1994) categorize these factors in five dimensions: (1) Government policies and procedures, (2) socioeconomic conditions, (3) entrepreneurial and business skills, (4) financial assistance and (5) non-financial assistance (ca. figure 3).

<p>Government Policies and Procedures</p> <ul style="list-style-type: none"> Restrictions on import and export Provision of bankruptcy laws Entry barriers Procedural requirements for registration and licensing Number of institutions for entrepreneurs to report to Rules and regulations governing entrepreneurial activities Laws to protect proprietary rights <p>Socioeconomic Conditions</p> <ul style="list-style-type: none"> Public attitude toward entrepreneurship Presence of experienced entrepreneurs Successful role models Existence of persons with entrepreneurial characteristics Recognition of exemplary entrepreneurial performance Proportion of small firms in the population of firms Diversity of economic activities Extent of economic grows <p>Entrepreneurial and Business Skills</p> <ul style="list-style-type: none"> Technical and vocational education Business education Entrepreneurial training programs Technical and vocational training programs Availability of information 	<p>Financial Assistance</p> <ul style="list-style-type: none"> Venture capital Alternative sources of financing Low-cost loans Willingness of financial institutions to finance small entrepreneurs Credit guarantee program for start-up enterprises Competition among financial institutions <p>Non-Financial Assistance</p> <ul style="list-style-type: none"> Counseling and support services Entrepreneurial networks Incubator facilities Government procurement programs for small businesses Government support for research and development Tax incentives and exemptions Local and international networks Modern transport and communication facilities
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Figure 3: Framework of Entrepreneurial Environments

Source: Gnyawali and Fogel 1994

Each of these five dimensions of entrepreneurial environments is related to a specific element of the entrepreneurial process (cf. figure 4). The presence of an opportunity is the core element which influences for example the entrepreneurial skills and inclination as well as the likelihood of a business formation. This core element is related to the dimension “Governmental regulation”: The better the legal and structural conditions are for efficient market functionality and the smaller the obstacles are which might prevent potential entrepreneurs from recognizing and exploiting opportunities, the more likely is a company formation (Gnyawali and Fogel 1994, p. 56).

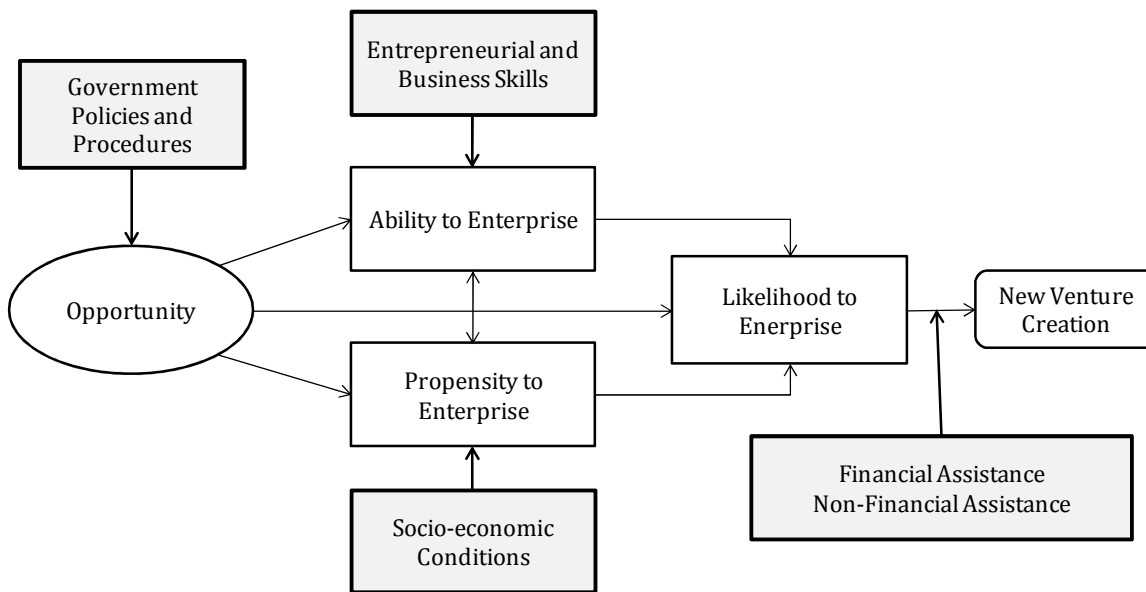


Figure 4: Integrative Model of Entrepreneurial Environments

Source: Gnyawali and Fogel 1994

The Propensity to Enterprise is related to the dimension „Socio-economic factors“. The more appreciated entrepreneurial values and behavior are in a society, the larger is the proportion of experienced entrepreneurs and role models, the higher is the social acceptance of entrepreneurial activities and the stronger are the Propensity to Enterprise and the Likelihood to Enterprise. The dimension “Entrepreneurial and Business Skills” influences the core element “Ability to Enterprise”: The more basic and advanced educational offers (technical and economic) are available and the better information is accessible, the better will potential entrepreneurs be able to start and manage a business. The dimensions “Financial Assistance” and “Non-Financial Assistance” will not unfold their positive influence on business formation until the superordinate likelihood of business formation is present or rather high. This is also mirrored by one of the model’s statements: “The higher the likelihood to enterprise and the greater the availability of financial and non-financial assistance, the higher new venture creation” (Gnyawali and Fogel 1994, p. 57).

Focus on „Elements“ and „Evolution“

The article by Neck et al. (2004) also deals with discovering environment-related factors which foster entrepreneurship in a region. In addition, it also introduces an evolutionary perspective on the entrepreneurial ecosystem. For this, the authors refer to an empirical analysis of the entrepreneurial region "Boulder County" (Colorado, USA).

Based on the idea of the mimetic isomorphism, according to which organizations tend to imitate each other (DiMaggio und Powell 1983), and which thus results in increased entrepreneurial activities in the same or similar industries, Neck et al. (2004) outline their model of an Entrepreneurial Ecosystem in two steps. In a first step, the authors categorize existing high-tech companies in a kind of genealogy according to their respective “Parent/Child” or rather “Incubator/Spin-off” relations by asking the founders about their previous employment and some other personal factors at the time of business formation. An incubator is defined as an organization

or company where the entrepreneur was employed before he started his own business. The new company is thus regarded as a spin-off. By means of this genealogy which comprised a total of 156 regional companies, Neck et al. (2004) identified several primary incubators in the business sector (four large established companies: IBM, StorageTek, Ball Aerospace and NBI) as well as in the public sector (University of Colorado and two other public research institutions, the National Center for Atmospheric Research and das National Institute of Standards and Technology). The events which triggered an especially large number of start-ups in the relevant period were also identified (for example bankruptcy of large established companies, company growth and a corresponding increase of bureaucracy, establishment of internal incubators, flotation on the stock market).

In a second step Neck et al. (2004) try to answer the following questions by means of a taxonomic analysis which is based on comprehensive interviews with the founders of “related” companies:

1. What is the incubators’ role in the spin-of and start-up activities?
2. Which factors do influence regional start-up activities apart from the entrepreneur’s personality?

The analysis of the first question showed that an incubator can assume a implicit or an explicit role for a new company. An implicit influence is given if the incubating organization is not informed about its associates’ start-up intentions and thus does not render any explicit support. In such a situation the future entrepreneur benefits from the experience he can gain in different fields such as product and market development, customer acquisition and after sales service and/or from his involvement in relevant business networks during his employment. After dropping out of the “parent company” he will be able to transfer all that into his newly founded enterprise. The investigation showed that in Boulder County 67 % of all start-ups benefited implicitly from the incubators. In contrast, the authors use the term “explicit support” if the incubators are informed about their associates’ entrepreneurial intentions and directly support them through counseling and/or the allocation of office space, facilities, machines, etc. 33 % of the companies and organizations in the review fell in this category.

In answering the second question, Neck et al. (2004) also identified further features of the Boulder County entrepreneurial ecosystem. They categorized the factors which the interviewees had stressed as important into several domains. Two main domains form the heart of the entrepreneurial ecosystem: (a) incubators and their relations with the spin-offs (explanation above) and (b) the region itself. The latter domain in turn includes four sub-categories: formal and informal networks, physical infrastructure and culture.

The formal network consists of six elements: (1) university, (2) Government, represented through regional public agencies and politics, (3) professional and supporting services such as legal and tax consultants, suppliers, business consultants, (4) capital resources such as venture capital companies, business angels, banks, (5) a high-tech talent pool and (6) large established companies. Figure 5 shows how the factors which form the Boulder county entrepreneurial ecosystem are

related. The numbers in the small boxes represent the frequency with which the respective elements were mentioned and thus can be interpreted as indicators of their importance.

Components of the Boulder County Entrepreneurial System	Incubator Organizations	Implicit Spin-Offs (New Ventures)	67%	Second and Future Generation Spin-Offs	13%	
		Explicit Spin-Offs (New Ventures)	33%			
	County	Formal Network	Informal Network			67%
			University		73%	
			Government		60%	
			Professional/Support Services		73%	
			Capital Sources		53%	
			Talent Pool		67%	
			Large Corporations		47%	
	Physical Infrastructure				20%	
Culture				100%		

Figure 5: Taxonomy of the Boulder Country Entrepreneurial System: Components with Frequencies of Founders Reporting

Source: Neck et al. 2004

In summary, a formal network’s elements are characterized by the following features (Neck et al. 2004, pp. 201-204):

University supports the entrepreneurial ecosystems in many ways, for example through education of qualified personnel and entrepreneurs, development of cutting edge technologies, provision of counseling services.

Government or public authorities can promote or constrain the regional entrepreneurial development. Tax instruments or other financial incentives, financial support and minimizing administrative barriers may be mentioned here.

Professional and supporting services offer legal and tax counseling to start-up companies, connect entrepreneurs with suppliers or subcontractors who are involved in the production of the final product.

Capital resources – 53% of the interviewees stressed that the presence of investors is required for business formation. Investors are attracted by the technological development of a region, which in turn promotes this development (self-reinforcing process).

Talent Pool – the presence of talented employees with relevant know-how in technology as well as other fields (administration, growth management, investment management etc.) in the area is also a decisive factor for an entrepreneurial ecosystem.

Large established companies take over several roles. On the one hand, they promote the development of a talent pool (many employees get frustrated because of too much internal administration and leave the large companies in order to start their own business and to realize their own ideas that way). On the other hand, they can directly support start-ups and spin-offs and thereby new technological developments.

An **informal network** consists of good, informal relations with friends, family members, colleagues, and selected high-tech companies. Informal relations gain importance in regions where the formal network is not very well developed.

The **physical infrastructure** is defined through tangible elements of the regional infrastructure, for example through ways and possibilities of transport or the range of available office space, flats and other realty. Limitations in the physical infrastructure may have a negative impact on the development of the future entrepreneurial ecosystem because entrepreneurs might switch to other, more cost-efficient regions.

Culture, according to Neck et al. (2004) who in turn refer to Mintzberg et al. (1998), is anything that makes an organization, industry or nation unique. In the interviews, the entrepreneurs mentioned the geographical position, the regional climate, intellectual capital, high-tech potential and the "Spirit of the West" as the characteristic features of Boulder County. With 100 % of all answers, culture can be regarded as the most important element for the development of an entrepreneurial ecosystem. At the same time, however, it is the most difficult part with regard to its management and reproducibility.

Characteristics of Entrepreneurial Ecosystems by Isenberg (2010, 2011)

In addition, it is noteworthy that many contributions with regard to entrepreneurial ecosystems are designed as single case studies. This is particularly true for the so-called university based entrepreneurial ecosystems where universities are regarded as main driving forces of entrepreneurship activities (O'Shea et al. 2005, Fayolle, Byrne 2010, Allen, Liebermann 2010, Butler 2010, Guillén et al. 2010, Ho et al. 2010). Due to the newness of the topic, most studies on Entrepreneurial ecosystems are of a rather descriptive nature. However, in combination with other contributions some common characteristics can be found. According to Daniel Isenberg (2010, 2011), whose research as leader of an entrepreneurship ecosystem project at Babson College is to be mentioned here in particular, spatial proximity of resources, uniqueness, sustainability and comprehensiveness are the main characteristics which distinguish the young ecosystem approach

from its academic predecessors such as entrepreneurship infrastructure or entrepreneurship environment.

Isenberg (2010) defines an entrepreneurial ecosystem (he uses the term „entrepreneurship ecosystem“) as a set of individual elements such as leadership, culture, financial and human capital, which are intertwined in a complex manner. Each of these elements is relevant for a region’s entrepreneurial activity, but without the other elements it is not sufficient for a sustainable entrepreneurial ecosystem. Resources that are required for entrepreneurial activities (customers, workers, funding, suitable buildings etc.) are concentrated locally and attract each other. A sustainable entrepreneurship requires an ecosystem and an ecosystem in turn requires the spatial proximity of resources which then can take effect together (Isenberg 2010).

The holistic perspective is the decisive feature of the entrepreneurial ecosystem because its elements cannot unfold their maximum impact until they can act as a well-balanced entity. Mutual effects and interdependences of the elements must therefore not be neglected, because otherwise any measures in support of entrepreneurship might yield quite contradictory results. For example, in spite of high investments into entrepreneurship education, qualified potential entrepreneurs may emigrate to other regions if venture capital is lacking (Isenberg 2011).

According to Isenberg (2010 and 2011), the key to sustainable entrepreneurship lies in the specific combinations of the elements in an entrepreneurial ecosystem. These combinations differ in the respective individual regions since they have grown organically for decades and centuries depending on the social, economic, political and geographic conditions and (accidental) events (Isenberg 2010 sowie Neck et al. 2004, Spilling 1996). No sustainable entrepreneurial ecosystem can be designed without taking into account the local situation and the holistic perspective. It will develop organically according to its ecosystematic nature by adjusting to the conditions of its environment and to the characteristics of its elements.

Figure 1 on the next page shows the composition of an entrepreneurial ecosystem according to Isenberg (2011). It consists of six domains which in turn comprise further elements: (1) **politics**, including leadership and government, (2) **finances**, (3) **culture**, including entrepreneurial success stories and social norms, (4) infrastructural, professional and non-public **support**, (5) **human capital**, including education and personnel, and (6) **markets**, consisting of networks and early customers. For a healthy entrepreneurial ecosystem each of the six domains should be available in the region and be entrepreneurship-friendly.

However, there is no easy path towards a sustainable, fully functional entrepreneurial ecosystem that is at the same time innovative. The creation of an entrepreneurship-friendly environment will be extremely difficult in particular if there is no explicit political support of and no high social and/or political priority on entrepreneurship.

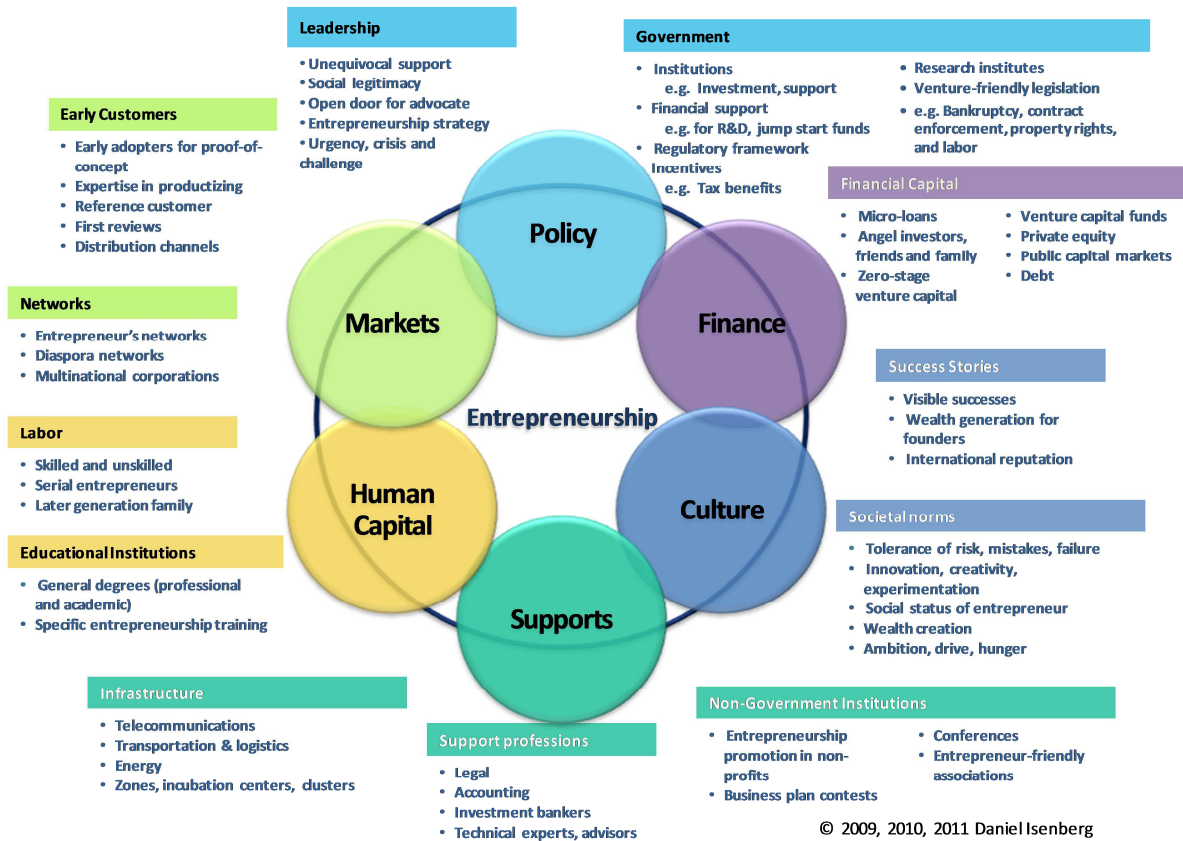


Figure 2: Domains of an Entrepreneurial Ecosystem

Source: Isenberg 2011

University-based Entrepreneurial Ecosystems

The nucleus of a university-based entrepreneurial ecosystem is a university or college where entrepreneurship is emphasized in a special way, for example through:

- consideration in the profile / mission statement of the university,
- the acknowledgement of entrepreneurship as an academic discipline of its own,
- the establishment of an Entrepreneurship chair,
- a comprehensive range of entrepreneurship classes and
- the creation and development of a network with the regional business community and other relevant stakeholders.

In addition, the university is expected to promote entrepreneurial thinking and acting through various activities and initiatives which go beyond the university itself and to support networking with relevant internal and external stakeholders (cf. Volkmann 2009). According to Greene et al. (2010, p. 2), a university-based entrepreneurial ecosystem is defined as „multidimensional enterprises that support entrepreneurship development through a variety of initiatives related to teaching, research and outreach.“

The anthology „The Development of University-Based Entrepreneurship Ecosystems – Global Practices“ by Fetters et al. (2010) offers a comprehensive picture of university-based entrepreneurial ecosystems which takes practical as well as theoretical aspects into account. Six university-based entrepreneurial ecosystems and their history are described in detail, for example Babson College, Singapore University and Texas University. The description is followed by a qualitative analysis which aims at the identification of common “success factors”. According to this analysis, universities which succeed in spreading and promoting the entrepreneurship spirit in their region and have created fully functional university-based entrepreneurial ecosystems distinguish themselves through the following features (Rice et al. 2010):

Senior leadership sponsorship for Entrepreneurship	Entrepreneurship center
Entrepreneurship strategic vision	Networking events
Entrepreneurship academic division	Entrepreneurship students club(s)
Entrepreneurship course	Business plan competition(s)
Entrepreneurship practicum	Student venture investment fund
Entrepreneurship concentration or minor	Links to angel and venture funds
Entrepreneurship courses for non-business majors	Incubator
Ongoing curriculum innovation	Entrepreneurship endowed chair(s)
Entrepreneurship research program or center	Center or program endowment

In addition, seven common indicators of successful university-based entrepreneurial ecosystems are identified. These are:

1. The university management acknowledges the importance of entrepreneurship embraces it as a part of the university’s corporate vision and acts accordingly to promote its establishment and promotion.
2. There are strong, visionary leading figures within the administration of entrepreneurial programs, centers, projects and initiatives as well as in the respective university departments who support the establishment of entrepreneurship in a determined way.
3. The commitment of the university management and other leading personalities to entrepreneurship is sustained and permanent.
4. There is sufficient funding for the establishment and promotion of entrepreneurship-friendly structures.
5. Curricula, teaching programs and teaching methods are regularly adjusted to the latest findings.
6. An appropriate organizational structure is provided.
7. The networking with other entrepreneurship-relevant agents within and outside the university is pursued with great commitment in order to reach the critical mass which is necessary for sustainability (cf. Rice et al. 2010).

The establishment of fully functional structures for the promotion of entrepreneurship is time-consuming: According to studies conducted by Rice et al. (2010) it takes at least 20 years to develop a sustainable university-based entrepreneurial ecosystem. The first impulse may come from within the university management (market push), driven either by university leaders who promote the

entrepreneurship vision through targeted activities or by leading personnel from a department or the administration who put a special emphasis on this topic. Ideally, all supporters of entrepreneurship from the university management, the departments and/or the administration join forces and start for example a common pilot program, i.e. a course, a research initiative or an outreach program in order to gain visibility and to attract further supporters and resources. If the first initiative is a success, it will lead to further projects. The ecosystem will grow organically until a critical mass is reached. At that point in time, it will become an official part of the university's strategic and financial planning (Rice et al. 2010).

It is, however, also possible that the establishment of a university-based entrepreneurial ecosystem is triggered by the demand side (market pull). For example, students may wish for an entrepreneurship course or a platform where they can network with successful entrepreneurs. Alumni who have become entrepreneurs themselves may motivate the university to establish entrepreneurship initiatives and offer their practical support for the introduction of entrepreneurship programs. A third possibility is that the development impetus for an entrepreneurial ecosystem comes from a government agency which aims for an entrepreneurship-relevant development program and asks universities and other institutions for their support in the establishment of such programs (Rice et al. 2010).

No matter how the creation of a university-based entrepreneurial ecosystem is started, it will usually mobilize internal and external forces which support its development. If the process is successful, it will result in a robust curricular and co-curricular program, numerous, dynamic research initiatives and a large number of outreach programs which foster entrepreneurial talents and create an entrepreneurship-friendly environment (Rice et al. 2010).

Insights from Empirical Work

As part of the project it was decided to supplement the understanding of Entrepreneurial Ecosystems from the literature with the practical experiences of each partner. Since the topic of entrepreneurship is embedded in different ways in the partner universities and the partner regions are therefore at different stages of Entrepreneurial Ecosystem, an exploratory approach was adopted. The regions with a traditional university were interviewed using a questionnaire on the actual state of their university-based entrepreneurial ecosystems. In addition, expert interviews were conducted with partners that are not associated with a traditional university.

Survey „University-based Entrepreneurial Ecosystems“

For our development of a survey template we refer to Isenberg's (2010) and Fetter's et al. (2010) (university-based) entrepreneurship ecosystem models as well as to other contributions on entrepreneurial environments (e.g. Bruno and Tyebjee 1982, Cohen 2006, Neck et al. 2004, Gnyawali and Fogel 1994, Van de Ven 1993).

Part 1: Entrepreneurship Education and Research

The first part of the questionnaire relates to the field of Entrepreneurship Education and Research. For example we wanted to know which entrepreneurship courses are offered at universities and if

entrepreneurial student initiatives do exist. In addition, it is important to know if and to which extent the subject of Entrepreneurship is recognized as a scientific discipline at universities and how it is established.

Entrepreneurship Courses offered at your university

Title	Time frame (per week)	Focus	Teaching method	Target group		Compulsory part of the curriculum? (yes/no)	IT-Technologies used
				Business or/and non-business students	Master, bachelor or/and PhD students		
Entrepreneurship	2h (15h/term)	The concept of entrepreneurship in different social sphere and management. Methodology of preparing and implementation business solution.	lecture	Students of The Faculty of Economy	master	yes	no
Entrepreneurship and innovation in company's sector	2h (30h/term)	Innovative solutions in business (organization, management, strategy and promotion fields). Definition of entrepreneurship and innovation, factors, barriers and social aspects of innovation.	lecture + meetings with representatives of supporting innovation company and institution	Students of The Faculty of Philosophy and Sociology	master	yes	no
Entrepreneurship on market of capital	2h (15h/term)	Information about market of capital: market forms, instruments of capital and risk of investment.	lecture	Students of The Faculty of Economy (management field)	bachelor	yes	no
Company study	2h (15h/term)	Theoretical and practical base of company activities (especially company management).	lecture	The Faculty of Economy (management and marketing)	bachelor	yes	with computer
Business start-up	2	After having attended this course, the students understand the economical importance of entrepreneurship. They realize characteristics of entrepreneurial persons. The students also understand the specifics of "entrepreneurial" management and they achieve knowledge of structures and environments which promote entrepreneurship. They learn means and ways on the way to a successful start-up: preparing a business plan, selection of corporate model, capital needed, financing, partnerships, human resources and staffing, outsourcing, marketing plan, patents and licences.	interactive lecture 5-days intensive course. guest lectures, discussions, examples, case studies. Teamwork	non-business	Master	no	e-learning system
Selected chapters of business management	2	<ul style="list-style-type: none"> - To accept change as regular part of business and see it as challenge and not as threat - To recognize changes timely - Develop strategies for successfully dealing with change - Solve issues of companies and case studies on this topic 	interactive lecture Blocked intensive seminar, elaboration of reports, presentation, discussions. Case studies seminar with cases on the topic and guest lecturers from industry and consulting;	non-business	Master	no	e-learning system

Title	Time frame (per week)	Focus	Teaching method	Target group		Compulsory part of the curriculum? (yes/no)	IT-Technologies used
				Business or/and non-business students	Master, bachelor or/and PhD students		
General Management and Innovation	2	After having attended this course, the students understand what management is. They have knowledge of management functions and their interdependencies. They know, what makes a good manager and are able to assess manager's abilities and competences. Furthermore they have knowledge of organizational models and corporate structures including process organization. In addition the students learn to think strategic and to understand tools and models. Students understand the influence of people's personalities and of the corporate culture on management and leadership. New developments in changing organizations will be recognized and realized.	multimedia-supported lecture Lectures with practical cases.	non-business	Master	yes	e-learning system
General Management, Case Studies	2	<ul style="list-style-type: none"> - Inter-disciplinary understanding and simulation of typical management activities in realistic cases - Get a feeling for business - Use and training of acquired management methods and tools - Use and practice of English language - Arguing and defending of a solution 	interactive lecture - Blocked 5-day course - Predominantly practice, discussion and presentation in team work - Presentation and discussion of results - Processing of a real-world case study and presenting of a solution within a given time frame	non-business	Master	no	e-learning system
General Management, Simulation	2	<ul style="list-style-type: none"> • After having attended this course, students know about the important aspects of systemic management and sustainable management. • They understand the diverse requirements on management and they have experience the demands placed on leaders during the different exercises. • They have reflected on leadership and their own skills. 	interactive lecture Lecture, interactive teaching, discussions. Teamwork, case studies and simulations. Blocked seminar.	non-business	Master	no	e-learning system
Entrepreneurship and start-up of corporation	1	<ul style="list-style-type: none"> • Understanding the economical importance of entrepreneurship • Knowledge and understanding of the characteristics of entrepreneurial persons • Understanding the specifics of "entrepreneurial" management • Knowledge and understanding of structures and environments which promote entrepreneurship • Practice and knowledge of means and ways on the way to a successful start-up: preparing a business plan, selection of corporate model, capital needed, financing, partnerships, human resources and staffing, outsourcing, marketing planning, patents and licenses 	4-days intensive course. guest lectures, discussions, examples, case studies. Teamwork	non-business	Master	no	e-learning system
Managerial Aspects of Entrepreneurship	6 hours	Transfer of basic knowledge, sensitizing for entrepreneurship and business formation, development of entrepreneurial skills	Lecture, business plan seminar, case study seminar	Business	Bachelor students	yes	no

Title	Time frame (per week)	Focus	Teaching method	Target group		Compulsory part of the curriculum? (yes/no)	IT-Technologies used
				Business or/and non-business students	Master, bachelor or/and PhD students		
Legal aspects of Entrepreneurship	6 hours	Company and labor law for entrepreneurs, legal aspects of M & A, intellectual and commercial property rights for entrepreneurs	Lecture	Business	Bachelor students	yes	no
Economic Aspects of Entrepreneurship	6 hours	Evolutionary economics, market development, global competition	Lecture	Business	Master students	yes	no
Several seminars on entrepreneurial topics	6 hours	e. g. Social Entrepreneurship, Entrepreneurial Ecosystems, Personality development of entrepreneurs, University Entrepreneurship etc.	Seminar	Business and non-business students	Bachelor and master students	no	no

Additional / extra-curricular activities

Legend:

1. Maria Curie Sklodowska University, Poland
2. Graz University of Technology, Austria
3. University of Tallinn, Estonia
4. University of Wuppertal, Germany

Does your university offer idea or business plan competitions? If so, do they focus on certain technologies or rather on company growth? How often do such competitions take place?

1. Not university itself but Academic Business Incubator as a member of Academic Business Incubators Organization. These competitions/propositions take place few time a year and focus on essential counseling in the field of development new business idea. Sometimes students can get some funds for starting their business.
2. <http://ideenwettbewerb.at/> curreted by Science Park Graz (business incubator in cooperation with Graz University of Technology and the local)
3. There is no idea or business plan competitions right now.
4. No.

(How) does your university inform students about competitions offered by other institutions?

1. Yes, mostly by the site of Academic Business Incubator (or by main university site).
2. Email, Website
3. Via Marketing department, home page news, e-mail lists, Institutes, lecturers.

4. Via internet (facebook, website, newsletter) or flyers and posters

(How) are students at your university motivated and supported with regard to participation in business plan competitions or other entrepreneurship-related competitions?

1. There is no special actions motivating and supporting students.
2. Rewards, material prizes, social event
3. The development of entrepreneurial ideas is supported, but there are no idea or business plan competitions right now.
4. They are informed and motivated by professors, lecturers and promoters.

(How) does your university help to arrange internships at start-ups or other companies which deal with entrepreneurship (for example venture capital companies)?

1. No, there is no institutional help of our university. In each faculty students must complete short term internship somewhere but in most cases students themselves are responsible for organization.
2. Employment ads at special developed platforms (information via homepage and email) and cooperation within projects such as bachelor project or master thesis
3. It is arranged via the career centre.
4. There is an online platform with available internships on the university's website.

(How often) does your university organize Networking Events with relevant stakeholders (for example young entrepreneurs, investors, corporate and start-up consultants)? Who is your contact person for such events?

1. There are no special Networking Events.
2. Several business introduction fairs (such as teconomy <http://www.teconomy.at/>), and cooperations with economies within projects
3. We are participating for ex. in TII network
4. Four times a year. One contact person is Stefan Gladbach.

Are there entrepreneurship-related student initiatives at your university (for example start-up counseling, students' Entrepreneurial Clubs etc.)?

1. There are no such initiatives.
2. <http://www.ove.at/youngove/> -<https://www.estiem.org/> <http://www.iaeste.at/> <http://fhspzs11.tu-graz.ac.at/sb-cms/> <http://www.wing-online.at/wingnet/graz.html>
3. Yes, via the career centre.
4. Yes, for Example SIFE (students in free enterprise).

Does your university organize guest lectures by entrepreneurs and / or researchers on entrepreneurship? Please give some examples.

1. Sometimes at the Faculty of Economics (rarely at the other faculties) local entrepreneurs or important business persons (i.e. representatives of business support institutions) are invited for lecture or single meeting.
Example of general university initiative (not one faculty): debate “Entrepreneurship – Leczek Czarnecki initiative” [meeting with Leszek Czarnecki and other important polish businessmen (2010) and students].
2. Yes, in many lectures different guest speakers (mostly from local businesses) are invited
3. Yes. For example, there is Hakkaja hommik [Enterprising morning] where our graduates who are successful entrepreneurs or other entrepreneurs share experiences. In addition within entrepreneurship courses guest lecturers are invited.
4. Yes, guest speakers from (local) businesses are regularly invited in our entrepreneurship lectures.

Are practitioners (for example lawyers, tax consultants, entrepreneurs) invited to teach in the field of entrepreneurship? Please specify.

1. The practitioners sometimes teach optional (extra-curricular or open) courses or are invited for special events (single or series of lecture). One compulsory course (Entrepreneurship and innovation in company’s sector) provides meetings with practitioners during the course.
2. Yes, in many lectures different guest speakers (mostly from local businesses) are invited, but also some of the professors are still working in this domain
3. Yes, 14 Hakkaja hommik events took place in last year. Entrepreneurs with the same educational background as students told them how they started business in different areas (psychology, political science, mathematics, sport, social work, pedagogical science etc).
4. Yes, for example there is a tax consultant who offers a non-compulsory seminar in taxes for entrepreneurs.

Are other additional / extra-curricular courses offered with regard to entrepreneurship (for example colloquiums, lecture series etc.)?

1. Yes, sometimes. I.e. workshops in the frame of Synergy Project (synergia.umcs.lublin.pl) or Career Office’s initiatives.
2. Yes, for example internal courses such as ‘Introduction to business planning for researchers’
3. Yes, lecture series and seminars are organized.
4. Yes, for example the Schumpeter School Colloquium, where representatives from business come together with researchers and discuss several topics (including Entrepreneurship)

How is entrepreneurship as a discipline institutionalized at your university?

(How) is Entrepreneurship a part of your university’s profile?

1. There is a Faculty of Economics at the University where “Entrepreneurship” is one of the subjects of research and study. At the Faculty there is also a Board of Entrepreneurs – a common body of researchers/tutors and entrepreneurs from Lublin Region. Aims of the

cooperation of Board:

- Exchange of information and experiences.
- Consulting.
- New initiatives and common undertakings.

There is also Careers Office – a special unit at the University responsible for contacts with potential employers, which help students in finding practical trainings, internships, scholars, volunteering or work.

There is also Centre of Innovation and Commercialization of Research – special unit responsible for matchmaking of researchers and potential clients from business world.

There is also Academic incubator at our University which is part of nationwide Academic Incubators.

Also different projects connected with entrepreneurship are organized, eg. “Synergy – competencies of students of the Faculty of Economics UMCS by gaining practical knowledge”; “Academic entrepreneurship as an opportunity for effective commercialization of scientific achievements”.

2. Graz University of Technology is focused on engineering education, but strongly supports economical background knowledge by offering fields of studies such as ‘Softwareengineering & Economy’ or ‘Electrical Engineering & Business’. The business incubator ‘Science Park’ is specialized on academics and students and is strongly connected to the student activities. Also cooperation with different business services and companies are enforced (http://portal.tugraz.at/portal/page/portal/TU_Graz/business_services).
3. We had few start ups.
4. The Schumpeter School of Business and Economics concentrates on the broad topic of Innovation and is therefore focused on topics like structural change, innovative business concepts, innovation-supporting market structures, educational-economic needs or the legal cushioning of innovations. In addition one of official six Teaching and Research Profiles of Wuppertal University is “BUSINESS, INOVATION AND ECONOMIC CHANGE” with the focus on Interdisciplinary research into the relations between entrepreneurship, business start-ups and innovation on the one hand, and economic development on the other, focuses on the economic, legal and political foundations and conditions, as well as the social, psychological, historical and ethical contexts of these phenomena. This involves analysis of the interactions between micropolitical decisions on the part of individual actors and macropolitical decisions at the federal or national level, with all their implications for the development of economic systems. Alongside the input of the faculties of economics (Schumpeter School of Business and Economics), humanities and social sciences, key contributions to the understanding of technological aspects of innovation are made by the engineering faculties and, especially in terms of methodological tools, by the university’s mathematicians and computer scientists. The synergies generated between these disciplines bear visible fruit not only in joint research projects but also in new degree programs such as industrial engineering.

(How) does the university management acknowledge the relevance of this topic?

1. The profile of university is to make research and spread it to students and other people. Anyway this topic become modern and rectors and deans from different faculties will have to put attention to it. Right now pupils in secondary school have already such a subject in frame of their classes – maybe something similar will appear in higher education.
2. (see above) trying to connect engineering activities with economical basics
3. Cooperation with enterprises is a strategic decision and supported by university management.
4. See above – Entrepreneurship is a part of the official profiles of the university

Are there entrepreneurship-related (possibly even inter-disciplinary) courses at your university (with regard to entrepreneurship, business venturing, business foundation, startups)? Please specify.

1. In frame of Synergy project:
 - Starting and running a business,
 - Stock market investments,
 - Practical aspects of entrepreneurship,
 - Computer accounting.There are also trainings and workshops organized by Careers Office for students or which are organised by other institutions in cooperation with Careers Office.
2. (See list 1) E.g. the course ‘business start-up’ motivates students from different engineering disciplines to work together on a simulated start-up project
3. Yes there are. For example, within HRM module a virtual collaboration initiative „Entrepreneurship Seminar on European Virtual Venturing“(4 ECTS) was organized between the Ecole supérieure d'Informatique, réseaux et systèmes d'information (ITIN) in Cergy-Pontoise (France) and IIS in spring 2010, 2011 and 2012. The seminar aimed to improve students’ awareness of and competence in virtual teamwork, enhance their intercultural understanding and develop knowledge and skills that would help them to understand the value, nature and current practice of entrepreneurship.
4. Yes, for example the module of combinatorial bachelor, where courses in Entrepreneurship are offered for all non-business students.

Are there entrepreneurship-related chairs at your university? Please give precise title and focus topics.

1. No.
2. Faculty for mechanical engineering & economic sciences
3. No
4. Yes:
 - Chair of Entrepreneurship and Economic Development / Unesco-Chair for Entrepreneurship and Intercultural Management (focus is in the name)
 - Chair of Business Education, Entrepreneurship Education and Entrepreneurship Teaching

(focus in the name)

- Chair of Industrial Economics and Innovation

Is there an Entrepreneurship Center at your university?

1. No, but there are other units responsible for Entrepreneurship:
 - Careers Office – for students
 - Centre of Innovation and Commercialization of Research – for researchers and tutors
2. Yes:
 - Institute of Business Economics and Industrial Sociology
 - Institute of General Management and Organization
 - Institute of Industrial Management and Innovation Research
 - Institute of Production Science and Management
3. No
4. Yes: Jackstädt Center for Entrepreneurship and Innovation Research

Are there entrepreneurship-related research institutes at your university? Please give precise titles and focus topics.

1. No.
2. Yes:
 - (1) Institute of Industrial Management and Innovation Research: In the quintessence research the strategic main focuses - on which the IBL is concentrated according to its strategy - are situated in Knowledge Management and Innovation Management as well as in Logistics and Production Management.
 - (2) Institute of Business Economics and Industrial Sociology:
 - Management Control, Accounting and Finance
 - Industrial Marketing, Purchasing and Supply Management
 - Human Resource Management and Industrial Sociology
 - The main research objective is to improve the holistic understanding of the complex processes within firms that provide technological goods and services in industrial markets to ensure the firms' future competitiveness and viability.
 - (3) Institute of General Management and Organisation:
 - Research projects <http://ufo.tugraz.at/forschung/projekte/> such as KBB (Knowledge for Business in Border Regions), SCIENCE FIT (Steirische Forschung für steirische KMU), AATT (Alps Adriatic Technology Transfer)
3. No
4. Yes: The Institute for Entrepreneurship and Innovations Research (iENTIRE) – with the focus on entrepreneurship research from Economic perspective and on entrepreneurship education

In which way are research results from the field of entrepreneurship utilized for teaching (for example through regular revision of teaching contents, introduction of new topics and methods)?

1. It is hard to check. We can only assume that teachers who provide lectures on these subjects update their materials according to current state of art.
2. New results are included into the learning content
3. No answer
4. New results are continuous included into the learning content

Does your university offer PhD positions in Entrepreneurship?

1. In polish system there are specified disciplines in which you can prepare your phd thesis. This discipline is very general like humanities or economics. But in frame of them you can deal with any subject which is innovative and interesting for you. It means that for example in frame of a given discipline you can deal with subject which is connected with entrepreneurship. In 2010 there was Phd thesis tilted “Students’ entrepreneurship and their attitudes towards money”.
2. The above mentioned institutes offer phd positions
3. No
4. Yes

(To what extent) are scientific articles on Entrepreneurship published?

1. There is a special journal in “International Journal of Synergy and Research“ which aims to provide a multidisciplinary platform for the advancement of knowledge in the areas of services, engineering, business, management, education and social sciences in the area of synergy. Editor –in-chief of this journal is dr. Agnieszka Sitko-Lutek Vice Dean of the Faculty of Economics from Institute of Management. More information: <http://ijsr.umcs.lublin.pl>
2. In dependency on the single institutions
3. Limited extent as it is still quite new area within curricula.
4. It is difficult to say to what extent, but scientific articles on Entrepreneurship are regular published in journals, collected editions, books, white papers, conference papers and so on.

Do research associates participate in entrepreneurship-related conferences? Please specify.

1. No.
2. In dependency on the single institutions
3. Sometimes.
4. Yes

Are there any other institutions in the field of Entrepreneurship Education and Research at your university?

1. No.
2. Yes, see <http://www.stronachinstitut.at/>
3. No.
4. No.

Part 2: Entrepreneurial Support

The first two survey blocks cover the processes that take place inside an educational institution. But for the success of a new venture other factors are also important. The concept of the Entrepreneurial Ecosystems deals with these factors and is the subject of the third survey part.

Legend:

1. Maria Curie Sklodowska University, Poland
2. Graz University of Technology, Austria
3. University of Tallinn, Estonia
4. University of Wuppertal, Germany

How is Entrepreneurial Support institutionalized at your university? Are there appropriate institutions such as start-up offices or transfer offices?

1. There is also Careers Office – a special unit at the University responsible for contacts with potential employers, which help students in finding practical trainings, internships, scholars, volunteering or work.
There is also Centre of Innovation and Commercialization of Research – special unit responsible for matchmaking of researchers and potential clients from business world.
There is also Academic incubator at our University which is part of nationwide Academic Incubators.
2. see above – Science Park and different services and initiatives such as
<http://www.ove.at/youngove/>
<https://www.estiem.org/>
<http://www.iaeste.at/>
<http://fhspzs11.tu-graz.ac.at/sb-cms/>
<http://www.wing-online.at/wingnet/graz.html>
The research & technology house for technology transfer
(<http://portal.tugraz.at/portal/page/portal/FTH/Technologietransfer/erstberatung>) provides support and first consulting
3. Yes, Knowledge transfer centre, we do not have a start-up office
4. Yes, there are several institutions and programs which offer entrepreneurial support. For example the initiative “bizeps” or “be-fit” offers consulting for entrepreneurs or for those who think about founding a new venture. Further there is a transfer office which connects companies with the research institutions.

Who are the target groups of support activities (students, university associates, researchers, professors, external interested parties)?

1. Students and researchers (including professors).
2. All those parties
3. All of them

4. Especially students and university associates are the target groups. At the same time the support activities try to connect these target groups with external parties.

How is attention drawn to the offers of start-up support (special homepage, advertising in classes, printed information)?

1. Special homepage, information on university homepage, posters.
2. Email, homepage, newsgroups printed information, ads in classes
3. e-mail
4. The support initiatives have a special homepage and are active on facebook as well as on other online-communities. Further there are regular advertising presentations in classes which are supported by printed information like posters and flyers.

(How) does your university actively support commercialization of academic research?

1. Cooperation with local authorities and local business.
Special unit at the University - Centre of Innovation and Commercialization of Research (responsible for the process of commercialization, preparing offers for the business and contacts with external stakeholders).
2. Many active partners in industry and collaborative projects
3. Academic staff and students are participating in commercialized research projects and consultations
4. Academic staff is also informed by regular advertising presentations about Entrepreneurship Support in classes which are supported by printed information like posters and flyers. Support services are offered for academic staff too.

Which services are offered in the context of start-up support?

- Support of idea generation / development of the business concept (1, 2, 3)
- Support in business plan preparation (1, 2, 3)
- *Legal and patent-related counseling (2, 4)*
- *Counseling with regard to taxes and accounting (2, 4)*
- *Support in teaming up with others (2, 4)*
- *Counseling and intermediation with regard to financing questions (2, 3, 4)*
- *Support in application for subsidies (2, 3, 4)*
- *Other Services (2, 4)*

(How) is the process of start-up support itself supported by IT technologies?

1. There is no special IT support.
2. To some extent e-learning systems
3. No
4. No.

Does your university network with start-up incubators and/or technology centers? Please specify. What is the aim of these connections? How does the cooperation work (shared workshops, lecture series, joint projects etc.)?

1. There is Academic incubator at our University which is part of nationwide Academic Incubators. In Lublin there is also Lublin Research and Technology Park in frame of which a Centre for Innovation and Technology Transfer was set up. Our University is also engaged in the work and research of this Centre. For this purpose 4 special centers were created at Lublin universities. 3 of them are coordinated by our University: Centre of Biotechnology, Centre for Environment Protection and Centre for Nanotechnology.
2. Yes, see above Science Park and the according projects, awards, fairs and meetings http://portal.tugraz.at/portal/page/portal/FTH/Technologietransfer/Start-up_Landkarte
3. Yes, Tallinn Business Incubators. We participate in events, promoting TU KT services
4. Yes, there is a good connection to the “Technologiezentrum Wuppertal W-tec” (technology center and incubator) and to the “Gründer- und Technologiezentrum Solingen” (founder and technology center, incubator).

Does your university network with other stakeholders from the start-up scene? Please specify. What is the aim of these connections?

1. In Lublin Region there are few institutes/foundation which deal with entrepreneurship. One of the biggest is Foundation for Lubelskie Development. Our University cooperates in some initiatives with this body. Also students can participate in workshops/trainings provided by this organization (a lot of this workshops are focus of a specific aspects of entrepreneurship).
2. Especially the local start-up parties are strongly connected to the each other and the local universities
3. Can't say.
4. Yes, we have good connections to supported local start-ups, to local Chamber of Commerce, to local development agency.

Does your university itself offer incubator services (for example provision of office space, office equipment, telecommunication services etc.)?

1. There is Academic incubator, but rather as an advisory body.
2. No
3. No
4. No

Part 3: Entrepreneurial Ecosystem in a wider sense

Note: Region is defined as the local environment in which your university has strong links to other (entrepreneurship- or technology-, politic-, history-caused) stakeholder. A region can be a town only or a district, county or a bundle of (nearby) towns. Your university is well embedded through its activities and networks in this territory.

Legend:

1. Maria Curie Skłodowska University, Poland
2. Graz University of Technology, Austria
3. University of Tallinn, Estonia
4. University of Wuppertal, Germany

1. Start-up culture

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region entrepreneurs and founders have a good reputation.		1		3 4	2
In my region people’s readiness to assume risks is high.		1 3 4	2		
In my region there are many successful entrepreneurs.			1	2 3 4	
In my region most people and institutions tolerate mistakes and give others a „second chance“.		4	1	2 3	
In my region chances are good to generate economic wealth through company formation.			1 3	2 4	

2. Human capital

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region there are enough qualified workers.			3	1 2 4	
In my region company founders have good entrepreneurial competences.			1 3	2 4	
In my region there are many chances to acquire entrepreneurial competences.			1	3 4	2
In my region there are many businesses which have been family-run over several generations.	3			1	2 4
In my region an employee will be glad to accept a job at a young company.		3 4	2	1	

3. Support

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region it is easy for start-up companies to receive qualified legal		1		2 3	

counseling.				4	
In my region it is easy for start-up companies to receive qualified economic and tax-related counseling.			1	2 3 4	
In my region it is easy for start-up companies to receive qualified technological counseling.			1	2 3 4	
In my region the physical infrastructure (roads, buildings, utility services, telecommunication, energy etc.) is well-suited for start-up companies.				1 3 4	2
In my region it is too expensive for start-up companies to use the physical infrastructure (roads, buildings, utility services, telecommunication, energy etc.).		3 4	2	1	

4. Politics

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region start-up support is an important political topic.			4	1	2 3
In my region founders can easily obtain the required permissions and licenses.		4	1	2 3	
In my region there are enough regulatory incentives for start-ups.		4		1 3	2
In my region legislation is entrepreneurship-friendly.			1 4	3	2
In my region there are an appropriate number of government support programs for start-ups.			4	3	1 2

5. Financing

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region there is enough venture capital available for start-ups.		1 4	2 3		
In my region there are private individuals (for example business angels) who invest in start-ups.			1	2 4	3
In my region there are sufficient government subsidies for start-ups available.		4		1 2	3
In my region conditions (for example interest rates) for debt capital (for example bank credits) are favorable.			1 3	2 4	
In my region it is easy for a start-up company to obtain a bank credit.		3	2 4	1	

6. Markets

Please evaluate the following statements	wrong	rather wrong	Neither wrong nor correct	rather correct	correct
In my region consumers are open-minded about new products and services.		1	3	2 4	
In my region consumers are open-minded about new product and service .			1 3	2 4	
In my region there are enough sub-contractors and suppliers which can support start-up companies.			3	1 4	2
In my region companies have good networks.			1 3	4	2
In my region there are many multi-national companies.			1 3	2 4	

Expert Interviews (non-traditional-university-based Entrepreneurial Ecosystems)

Die folgenden Experteninterviews wurden mit den Partnern durchgeführt, die nicht einer traditionellen Universität zugehörig sind. Folgende Personen wurden interviewt:

Angelique Lansu (Open University, School of Science, Heerlen, the Netherlands)

Interview with Angelique Lansu (Open University, School of Science, Heerlen, the Netherlands)

Legend:

- T – Tatsiana Varabei, University of Wuppertal, Germany
- A - Angelique Lansu, Open University, School of Science, Heerlen, the Netherlands

T: In our interview we set our focus on virtual consulting because you have the most expertise in it.

A: At our faculty, the school of science, we don't educate entrepreneurship as such, but an environmental scientist is always in the position - in companies, in institutions, in public authorities, in all kind of bridging positions, in a public position – in which he/she has to interact and to negotiate with enterprises and vice of versa, to create new knowledge. That is the reason, why we think, that entrepreneurial skills are needed by our students but also for the starting of a new (one-man) company, e.g. as a environmental of sustainability consultant/advisor.

T: Let me summarize: You are not dealing with the problems of starting a new company, but you need the entrepreneurial skills for other subjects: for improving the cooperation (knowledge exchange and knowledge construction) among companies and public institutions and research.

T: What do the terms "virtual environmental consultancy", "virtual placements" and "virtual internship" mean? Are they similar?

A: "Virtual consultancy" is a company as a didactic model of cooperative learning/work which we have integrated in our bachelor program, bachelor curriculum BSc Environmental Sciences). It is a kind of virtual company in which students are employees and meanwhile work on research advice for outside real companies (e.g. de Kraker et al., 2007; van Dorp et al., 2010). That part of their job, producing a research report on an issue in sustainability, is a part of their bachelor thesis. For this kind of cooperation I also use the word "Remote research internships" because that kind of online working on research for other companies is also a kind of (remote) internship. We call it remote internships, not virtual internships, because the internship is real but online. In more details students work for their employers, for real companies, but they don't work in the company offices, at promises of the employers, they work at home. We compare our remote internship students with regular internship students. Both have the same kind of assignments and the same status in the company but remote students are not visible, they are virtually.

T: Are they paid for their work?

A: No. At our department, the internships are never paid, because it is a learning environment with learning goals: The student(team) may have failed in the job and the final product, but the assessment of the expected learning outcome may have been achieved. Only then when the

students have to do something like to travel for the companies purposes, they get the employers' reimbursement for expenses. In environmental sciences nearly all internships are unpaid.

T: In your articles I read that such internships are not completely virtually. There are four meetings each course run/trajectory in which students and their employers come together in the real world, for real meetings. Are there?

A: It is a kind of blended learning. Most of the time is planned into program year starting in September and ending in March or starting in January and ending in July. Each trajectory starts with a face-to-face meeting which is very important in virtual learning. This is an obligatory meeting only attended by students and tutors. After the kickoff session and introduction of problems of employers students have to transform these problems into researchable questions. In the first three-four weeks students arrange themselves to meet at the premises of the employers to talk about their ideas concerning the research questions. Sometimes they also have field visits because you need the theoretical base and also practical experiences like experiences in a nature area for solving environmental problems. And finally at the end of the internship students present their research results at our meeting place with all tutors and the employers invited. It is a program with about four teams each consisting of four students who are working on different topics and for different employers. Besides also the students of the next round of the remote internships are invited (to attend the presentations as example of the work to do).

T: But that kind of remote internship requires certain proximity of students and, of employer companies to the university. It is not purely virtual or distantly.

A: It depends on what is distance. Majority of our students (95%) live in the Netherlands or in Belgium (25%) and we have our meetings in Eindhoven, in the south of the Netherlands, it is in-between North Netherland and South Belgium. The students come there to meet each other four or five times each program year (program year = seven month).

T: How do you organize the group works in the remote internships? Do you have some specific problems with regards to such remote group work?

A: Most of our students are from the Netherlands or from Belgium and most our employers also come from these countries. In this case the problem of distance is the same or similar for both. But we already had an employer from Argentina (from a Netherland - Argentina development project) and we had a Dutch employer from Vietnam (a Dutch institution which was working on environmental problems of Mekong). The same situation we have with our students. Several of them work abroad. We use Skype to meet them during the regular face-to-face meetings. We let them present their work on Skype but in the same room with all other students and tutors. And we discuss with microphone in the meeting. That is the example on how we make the cooperation between students who are not available for the face-to-face meetings and the students who come to the face-to-face meetings.

A: In 2000-2005, we have run our course also with students from Maastricht University, Eindhoven Applied Sciences University and Twente University as virtual or distance education component within their regular, conventional education. The model works well if you spread the students over the teams equally, so that each student in the team has the same status and everyone is well dispersed in the team (geo-dispersed virtual teams; e.g. Dekker et al, 2007). If you have a team with some students living and working in the same place and with other students are well dispersed than you will get subgroups and it will be difficult to work together on the same level. Because the subgroup is going to do a lot of work which is not available in the virtual learning space. The work and (intermediate) products are out-of-view and it is difficult for other team members because they don't see and interact what the subgroup is preparing, doing and discussing, how its thinking is developing. I think, there is a lot of literature on these phenomena available, because the same problem occurs in virtual teams in companies. Virtual teams in companies don't function very well if there is a subgroup working autonomic.

T: Another question. Are there differences in the quality of presentations between the students who present their work live and the students who present via Skype?

A: I don't have any measurements on this, because between these face-to-face meetings there are a lot of Skype contacts and a lot of Skype pre-presentations. Students are used to discuss on Skype, each team member has once a week a Skype meeting with the whole team. And they use also presentations on Skype what are they doing in the research. But I do have a very nice example on how sometimes Skype could be a reason for a more professional presentation. Our students are adult or mature people who already had a part of their live and some of them are very regional bounded and talk in strong regional dialect. And in face-to-face presentations they still use their regional dialect because that is their image and they represent their regions through the dialect. We have had a person among our students with strong entrepreneurial connections to its region (customers, suppliers, cooperation partners) and who spoke a strong dialect of his region during the face-to-face meetings. The final presentation was held on Skype and we were surprised by the way of presentation. The student was aware of the whole world listening and its attitude was changed to really nice and sophisticated way of speaking and presenting. But it is just one example; I cannot say there are regular differences in Skype presentations.

T: Another question about the companies which are employers in your remote internships. How do you find them?

A: We use two main networks. One network is our own research network of the whole school of science. Our staff (tutors and chair-holders) are well connected among their research field. One colleague has good connections to the network of energy research, another colleague to environmental issues. So we use the networks of the staff. Another useful network is the one of our alumni. They are very enthusiastic about the model of remote internships because they have done a distance education study and they know how it is important to be confronted with practice. And it works as a network should work. One employer company recommends us to its "friend" company, and so on. The network is growing.

T: Do the employer companies have more benefits from remote internships than disadvantages caused e.g. by more organizational work?

A: What we hear from the employers is that they like to set out this kind of assignments and that they prefer to have some preparations inside before they start the internships. The companies use our interns to deepen out the current problem or the research subject, to get more insights into it. In that way companies have no more risk if they hire our students for their purposes compared to conventional interns. The employer companies give the remote interns work with no risk, and the result of this work could be very beneficial especially in novel environmental developments because at the end of the internship companies get research based studies made on their assignments. Further, companies like very much the quality of the work. And this work force is for free, because we know, that the students are still learning and they could make mistakes or they could skip their study. But we also know that the final work will be of good quality in accordance with the requirements for a bachelor thesis.

T: And what are the benefits for you as a research and educational institution from the cooperation with companies?

A: For our science bases it is very beneficial to have students working on new developments, on current, novel topics. We are the tutors and we are guiding and coaching the students and in the same time we are also involved in this new research. That is a very direct knowledge transfer from new outside developments in the broad region of the Netherlands and Belgium to our research group. Another point is that we develop distance education on environmental sciences. Our education is also enhanced by this context, by these research topics. You have a lot of new topics within your educational program because you have worked with the students and they have worked on new developments, on new topics and current problems, in which employers have asked for advice, based on research. That's from the one side. I think for the students the most important point is that they can give their educational program a practical component and that they are in contact with future employers and future work field. Most students have jobs but these jobs are at pre-bachelor or applied sciences level, and not at the academic level. They use their study to shift from a pre-bachelor worker in the environmental science to a higher educated worker position. Or they use their study to shift from the sector, e.g. from laboratory worker to an environmental coordinator. In the environmental sciences there are more opportunities for higher educated people. And the remote internship is an opportunity to get in contact not only with the employer of their own project (team), they are also in contact with a lot of potential employers (colleague students; other employers in same run), e.g. environmental institutions or research departments. Our students enhance their networks for the future.

T: How old are your students in average?

A: Mean age at enrolment of the applicants is about 36 years old, but the age of applicants can range from 18 to over 60.

T: And do they have already some experiences in environmental sciences?

A: I don't know exact numbers, but we have a large group of students which did any kind of engineering education before but on a lower level like Fachhochschule (e.g B.Eng. degree); The majority of students (91,8%) enrolled as a transfer student based on prior diplomas (mostly professional bachelor diplomas in biomedical analysis, environmental management, chemistry or other related domains). Let's say 40% have something to do with environmental issues but not on the research base and not at higher, academic level. In the Netherlands, at public or semi-public institutions, you need a formal academic degree if you want to get a job at academic/research level in public institutions. It is very strictly. Private employers are less strictly.

T: Let me go back to the remote internships. Your students do research based work on current problems from the practice. Is that right?

A: Yes. We offer a research based educational program. We accept only questions from the employers in which we can do scientific research. If a question doesn't meet scientific requirements we try to find another research topic. We don't accept applied research questions, on which no complex 'academic' question could be formulated.

T: What language is used in the remote internships?

A: Dutch with all kinds of variety of Dutch dialects. The Belgium students are almost all Belgium-Flemish students, so all Dutch and Belgium students speak the same language, Dutch. The language of reporting depends on the wishes of employers and students. I think at the moment a half of the reports is in English. Sometimes we have the situation that Dutch employers ask for research on international topics. E.g. three research projects studied Romanian water management questions, because the Dutch employers were in (EU) cooperation with Romanian institutions, so the report had to be written in English.

T: What do you think, is there a difference between the traditional students and the students which are enrolled at distance universities?

Yes, first of all there is the difference in age; Mean age of enrollment is 36 year instead of 18-22 year. And secondly, there is the difference in prior knowledge and prior career (expertise), because a majority of students has have a former educational degree in the applied sciences and more of less job experiences in- and outside the environmental work field.

T: Your learning model of Virtual Environmental Consultancy helps your students to get an inside look into real practice, into daily routine in established organizations and companies. Do you think that such remote internships will work also in young enterprises too? Please keep in mind that the main characteristics of young companies are e.g. urgency, quickly reaction and response, flexibility.

Yes, such a model is really flexible. This is shown by the wide variety of research projects (80 since 2000, on all themes of the EU Horizons 2020) and it's openness to a broad range of students with high levels of heterogeneity of prior expertise, education, career, age, and professional and personal motivation.

T: Do you think that remote internship could also work well without any physical face-to-face meetings? In virtual environments only?

Because online conferencing, online working tools and social media are rapidly developing to free access and easy to use tools, I don't see any problems on virtual environments without any face-to-face meetings structured in the didactic model.

T: Do you have some further remarks, conclusions which could be important in the context of the interview and of the CBVI project?

No, thank you

Interview with Erik Wallin (City Conersity AB, Sweden)

Legend:

- T – Tatsiana Varabei, University of Wuppertal, Germany
- E – Erik Wallin, City Conersity AB, Sweden

T: Can you please tell me something about you, your competences, and your backgrounds?

E: I have a solid background from a technical university (Institute of Technology at Lund University), so I am a scientist in experimental physics; I am a civil engineer going down to the micro cosmos. At the gymnasium (the science branch) I was one of the best students in physics in the whole country. I was supposed to continue in physics and I did. But I became very interested in the interface between technology and environment and society. It was in these days (1960's) when environmental crises began. Technology seemed to be a criminal force in the development of society. People became a little bit critical about technology and were engaged in different social movements like Green and Peace Movements. Then I turned over from the Institute of Technology to the Social Science Department at Lund University. I became very interested in human and economic geography. I was selected by one of the professors there for a position as a researcher in a research group called "process and systems analysis in human geography". It was a system's thinking oriented approach to social science and the model is internationally known as *the time-geographical model* of society. We used time and space as the two basic dimensions and descriptors on what's going on in the society. I worked with this model and did some practical research on the budgeting of human time in society, including sleeping (the activity that consumes most of this resource). We really tried to understand the concrete local context in which people are engaged in their daily life. And some of the experiences from that I put into my dissertation which I called "*The Generative Grammar of Everyday Life*". I mean, people has to understand and follow a kind of language in their daily life, such as signs of "Private Property", and what this means for what you can, should, must or could do. With this kind of modeling devices we were able to begin a discussion and design-oriented research on *alternative societies on the micro levels*.

This period was quite interesting. But after that I became a professional in IT (ICT in general with focus on geographical information systems, social collaboration instruments and simulation technologies). I switched over to this field and got a job at *Lund University Computing Center* and later at the department of Informatics at the School of Economics and Management, also within Lund University. There I have been engaged in research, course design and supervision in the field of knowledge management, strategic management and information technologies over the last 20 years. For the last ten years I've been more and more oriented to business modeling that take advantage of modern information technologies. And over the years I was happy to be engaged in what we in Sweden call the "*Third Mission*". Universities in Sweden have three missions. One is research - to generate new knowledge, the second is education - to transfer available knowledge to the young generation, and the third is to engage in the development of the surrounding society. And this third mission is quite near to lifelong learning, e-learning, engagement in sustainable development etc. When I left Lund University some years ago as a professor emeritus I began to

engage in some EU-projects in the field of Lifelong Learning with my small own company, *City Conersity AB*, as the formal body for employment, engagements and contract writings.

E: I think our current EU-project, *CBVI: Cross Border Virtual Incubator*, is a very interesting project for new thinking with some revolutionary potential for key areas of contemporary social concern, such as employment and job creation. I wish for myself that we will have some messages in our final report about what is going on in Europe in the evolution from the traditional, national industrial epoch to the modern, transnational and knowledge intensive economy. One of the messages I have got from the green movement environmentalists - which is very important for me - is that "*business as usual is not an option*".

T: *What is an alternative for the "conventional" business in your opinion?*

E: When you look on the world from a natural science point of view, from a social point of view, and an economic point of view, what do we see? Who is contributing most to the absence of ethics? To the generation of negative external effects? Natural, social or economic forces?

Nobody seems to care as long as the main thing is that *money is earned* – no concern for reduced environmental harms, higher level of thrust for social institutions or a better distribution of welfare in the population. Today, only profit making operations seems be a solution for the next civilization. The CBVI project should be able – as I see it – to contribute to more *disruptive innovations* and *destructive creativity* in the field of business creation and value adding processes that makes possible results that are good not only for the economy but also for nature and all the people in a society, according to accounting with a *Triple Bottom Line*: What results have been achieved that are good for The People (social capital), The Profit (economic capital) and The Planet (natural capital). That means to work with a more complex set of values, not only Profit but also People and Planet. That is the model I am trying to work with. In this model you have three value dimensions. And when I am thinking about entrepreneurship today, I am totally uninterested in entrepreneurs who only have profit as their driving force. It is so easy to generate new business where profit is the only concern. But it has no relevance at all for the long term evolution of the society. From my point of view the real issue now is societal entrepreneurship. And that is also my profile.

T: *Do you mean to make business with social responsibility?*

E: Yes.

T: *Are businesses with social responsibility also the subject of the Lundaland Incubator?*

E: Yes, exactly. In modern societies incubators should really try to support and enhance business ideas which are a little bit revolutionary from the conventional venture capital perspective. People, local people around the world are interested in new approaches to "the social construction of reality". They understand that we have to make something new and that accepting business as usual is a major contributor to our present problems. According to my opinion there are a lot of emerging actors on the international scene that also try to outsource or crowdsource this kind of

global challenges. And people have an interest to engage in it, but we don't have a good support for the starting of businesses with societal value which can survive without earning money traditionally. I am looking for new business models of societal entrepreneurship. Such societal companies should be able to get support more easily and have sponsors and people working freely without salary for them because working for the good cause is considered more important than working only for money.

T: Can you tell me more about the Lundaland incubator? Does it already exist?

E: Lundaland follows the general guidelines of a LEADER project.. Such a project runs in cycles of seven years, and I think that in 2014 the fourth cycle will begin.. A LEADER project is based on the idea that people in the rural regions in Europe can be brought together and engaged in local development projects by their own initiatives. They know what problems they have locally, and they know who can join forces and resources with them to achieve social goals. It is a grass root initiative supported by EU. I think it is special funding for the agriculture sectors of EU member states. In Sweden it is the Ministry of Agriculture that has got money from EU to distribute to the Swedish LEADER projects. There is 50% of the funding from the EU but the local administrative bodies like municipals, county administrative bodies, civic organizations and local citizens must also contribute with 50% of the needed resources. The local people contribute with their working hours. They get the money from the project to handle different kind of costs but they also get money for their own work. These projects have to be accepted by a committee which is composed of representatives from the local communities, municipals, industry and idealistic associations - sports, arts and so on. They have a steering group to accept or to reject proposals to new LEADER micro-projects within the LEADER area. So we have made a distinction between the LEADER project as a whole over seven years for the specific area and the specific *micro projects* from the grass root level. Each of these projects may have a running time of two or three years with different sizes of the budgets. The experience we have made when working with the grass root people engaged *in the micro-projects* is that they are a little bit unhappy about the difficulties *to go from a finished LEADER micro project into an ongoing sustainable company*. For instance if you set up a local theatre group and they make shows, people are happy, and the group made a nice report for the EU. Everything is OK, everybody is happy and would like to proceed as a new social enterprise. How to do that? At the moment, an incubator for social entrepreneurship is missing, not only for the case of Lundaland but for most other LEADER projects.

T: I understand. These micro projects are not sustainable.

E: Yes. We identified the need to bridge over from these local experiences of micro project teams to some kind of business modeling to make this adventure sustainable and possible to run without full dependence on public funding. This is a concrete example of the need for incubators for societal innovations and social entrepreneurship.

T: And what kind of support do the people receive from this project? Is it only the money, only the funding? Or do they get consulting, education and so on with regard to their ideas?

E: In the Lundaland case there is a set up of administrative people who help these micro projects with formalities of project administration (project applications, project reports), but also with contacts to other relevant stakeholder groups e.g. with local newspapers to make more PR. But in the moment there are no real incubating services offered. I think the reason for this is the absence of constructive discussion about new business models. I think we can combine state of the art ICT with new kinds of business models for societal entrepreneurship. Just to give you an example. Check the new company *ZipCar* on the internet at <http://www.zipcar.com>. It is a business model where you can use available private cars in your neighborhood. One personal car is used by the owner perhaps only 15 % of the time in the week, meaning that it is unused 85% of the time – but could be used by those who need a car only for some hours. Such sharing service can be a good option also for the owner as costs for parking etc transforms into revenues from car rentals. The company takes care of all the administrative issues like insurance and so on and is also contributing to the social value in the neighborhood because these experiences make people trust each other. This model also reduces the costs for the planet. It is an example of *a business model that really works with the PPP model*.

Another example: <http://www.airbnb.com>. That goes with the same kind of business model on private accommodations. It is growing very fast now. The private rooms which are listed at the internet platform can be rented by people like hotel rooms. And also here you build up a kind of friendly trust relations between the guests and the host. You build up a kind of international social adding value by exchanging experiences, culture etc.

These are examples of quite new interesting business models. But we don't have any incubator - at least not in Sweden - that focuses on these new opportunities of social entrepreneurship with the use of modern ICT tools and with creating dedicated local communities of practice for these kinds of needs and local semi-public services. This is an interesting growth area where I think some of the CBVI partners may be able to contribute by some sort of cross-border virtual incubator for EU-based social enterprises of the kind illustrated earlier.

T: What is about the entrepreneurship education in Lundaland? Are there courses - for example - in business plan writing, in developing business ideas and so on?

E: In the present cycle of Lundaland there are no dedicated courses for business planning. I see Lundaland as a learning, entrepreneurial and innovative region. We have to raise awareness for the need of that kind of new competence development for grass root actors. What we are discussing now with other incubators in the region is how we can join our forces into an incubator for social enterprises that combines some of the regional resources at hand, such as the Ideon Research Park in Lund, the Media Evolution cluster in Malmö and the micro projects in Lundaland. In the first investigation we noticed that the critical mass of potential entrepreneurs were too little to set up a big new incubator. It is better to use some of the other incubators, networks and clusters and try to see how coordination or collaboration between these different groups can be made. Currently I work with the Media Evolution cluster and try to go from these examples which I just showed you to how you can use new media for contributing to better local welfare. So you can take it from the

technological or business side of view and try to implement it within the Lundaland context. That means we can have a more open innovative environment and we can create that kind of expertise and public interest that is needed to establish an incubator with a critical mass of stakeholders and entrepreneurs that can start up social enterprises on the international market with profiles that fit the regional actors and resources best.

T: Is Media Evolution a virtual incubator only or is it a physical one?

E: Both. Media Evolution City (www.mediaevolutioncity.se) is a house in the physical sense. But there are many companies incubated which are also active in the virtual world.

T: Is it an incubator in traditional sense? I mean entrepreneurs are supported there and incubated in its safe environment.

E: Yes.

T: Is there a specific focus e.g. only on virtual enterprises? Or could every kind of new business be incubated there?

E: One of the entrance requirements is the belonging to the media branch; in the network of Media Evolution are only media companies or media institutions. The member categories are - according to the homepage www.mediaevolution.se - academia, digital games, films, communication, learning, media technology, music, public sector, publishing, TV, web. Typically companies are in one or two of these categories. There are some TV producers, musicians, actors etc. It is more a cluster than an incubator, a media cluster. Many of the members are not located in the building, but they can use the building for meetings, conferences, etc.

T: Is it a network of young companies only or do also established companies belong to the network?

E: There are also established companies. For example the SDS-group of newspapers and Swedish Television.

T: You mentioned that you are missing incubators for societal startups. Can you explain your idea about such incubators? What kind of support services such incubators should offer? What is their main difference to traditional incubators in your opinion? Do such societal incubators have their specific problems or challenges?

E: I think the most important challenge is to get rid of the classical "Profit"-based approach to the art of generating value for stakeholders and make the PPP-model more popular as a framework for business modeling.

T: Do you have some further remarks, conclusions which could be important in the context of the interview and of the CBVI project?



E: The current business idea for City Conersity AB is to take the final results from the CBVI-project and transform them into an operational business model for the establishment of an incubator for social enterprises up in the clouds...

Interview with Diana Andone (Politechnica University of Timisoara, Romania)

Legend:

- T – Tatsiana Varabei, University of Wuppertal, Germany
- D – Diana Andone, Politechnica University of Timisoara, Romania

T: Before we start our interview please tell some words about yourself.

D: I am Diana Andone I am a director of eLearning Center at Politechnica University of Timisoara and I work since 1995 in the university dealing with multimedia development and also with e-learning. We have strong relation to a lot of regional companies which are producing software and multimedia application or recently mobile applications.

T: Is this E-Learning Center a interdisciplinary one?

D: Yes. It belongs to the whole university. We offer support for all the faculties - from management, to computer science, to architecture, to electronics, to mechanics etc...

A: What is about Entrepreneurship Education or Research at your university?

D: We are a public / state-owned university – a technical university. We have a business school which is quite involved in entrepreneurial courses. Recently the business school had a project where we were partner and in which we've been involved. The project tried to build up a virtual learning platform for entrepreneurship. There were different workshops and so on which will be put online to encourage students or young graduates to learn how to do a start up or how to do a business plan, and what are the legislations and about this...

D: Then in our university we have a faculty of management. They also have a lot of entrepreneurship-courses. All students in the fourth year of study have a course which is called "business opportunities" where they learn about several things in entrepreneurship – so they also learn about business planning, management, marketing, law and so on... somehow this has become quite compulsory for all the specializations / for all degrees. Everybody will have a compulsory course which deals with management and business opportunity.

A: Do I understand you right: this course is now open for alle students? Not only for management students?

D: It is for all students of the university. It doesn't matter wether civil engineering or mechanical science. Obviously students do this course with a specific point of view from their subject. So it is not the same course across the university. For example: The students in computer science learn more about the ICT-laws and how to do a business plan within the ict-sector. The courses are run by the management faculty but there are separate ones for each faculty.

D: Regarding to entrepreneurship and entrepreneurial activities at our university we established finally in 2004 (started since 2000) a business incubator, an ICT business incubator and the university holds 55% of the shares of it. The incubator was established as a company support and to

help founders to develop their startup. The business incubator is located in one of our university buildings. In fact almost half of a five story building belongs to the incubator. So they are very close related to the university because they're on the campus and lots of activities are run together. Plus almost all of the companies - which were 32 until now – have graduates of our university.

T: And this incubator incubates only companies from ICT sector?

D: Yes, it's a software business incubator with the focus on software development. Mainly because the western region of Romania – where Timisoara is located – is called the "Silicon Valley of Romania" because there is a high agglomeration of ICT, software, automotive and electronic business. Almost 70 % of the industry which is in this region is coming from this sector.

T: And what support services do you offer? (for the students and for the startups)

A: In the incubator?! I'm not very well aware of all the services but obviously they get the standards like space, offices at a very low rent – I think in the first 6 month they don't even pay any rent - and so on. Plus, they get a lot of consultancy and at the beginning - for example - the accountancy is also done together with the incubator. The incubator has an accountant who is paid by the incubator to help the companies at the beginning with the financial issues due to the fact that this is usually one of the biggest challenges which the young startups face and it is quite expensive to pay an account by their own. Furthermore they get support for the business plan, for the marketing and for the management of their company. Besides there are several workshops and trainings which the incubator provides with the help of the university or of other institutions around the world.

Timisoara is very well connected with other incubators as well as with venture capitalists from around the world.

T: And what is about financing? Is the incubator a part-owner of the incubated companies?

D: No.

T: It only provides connections to venture capital?

D: Yes.

T: What it's about the whole situation? How are the conditions for starting a business in Timisoara?

D: I speak about the situation in ICT-Business. We are trying very much to encourage our students to start their own business.

Because in the ICT-business it is not so expensive and not so complicated, it is mainly knowledge based, it's not like for ex. in agriculture, medicine. Two or three people with a laptop and a server can do quite a good business. We try to encourage them. Mainly because we have a lot of multinational companies around here and there are not enough graduates for all the companies. So every graduate considers if he really wants to do their own business and to live on the limit of

money. Or they decide for the “safe-pack” – very good salary in a big company. Our students need a lot of courage and they need to really believe in their ideas and that they are able to do it. That’s why we try to help and to encourage them.

D: Also we saw recently that many of the youngsters who had worked for big multinational companies and who saved some money after some time start their own businesses and some are coming back. Not only to the incubator but to lots of trainings and workshops. They are looking for contacts to the university. And they are no young graduates in the mid twenties but in the mid thirties with experiences. They know the market and often they have a quite secure financial situation since they earned for 10-15 years quite a good amount of money.

T: Do you know something about the average size of these young companies?

D: They are small businesses – maybe around 5 persons, at least in the ITC-business

T: Do you promote the incubator activities in the university?

D: Yes, there are a very strong relations and any activity the incubator will have will be very well promoted inside the university among the students. Besides: One of the major activity is to run cooperations with the university – with different departments of the universities and also with student associations which are very strong at our university...like AIESEC or the computer science association... So the students will know it from them and not only from posters, emails and so on...

T: Do you have some government-programs which support startups?

Not to my knowledge. The only thing I know is that the Romanian government has a policy or a law which allows you for the first 3 years to have no taxes on your profits. What I also know is that they have some incentives. For example when they hire someone from the ICT-sector it’s a lower tax than for the others...they try a lot to improve the ICT sector because they realized this is strengthening the Romanian society... Im not sure about that...ask Rabov...

T: Let me rephrase you: You said that you are offering entrepreneurship courses on an e-learning base?

D: Yes.

T: Is it also possible for students of other subjects to get business consulting? Or is the consulting only for the students of your own focus – only for ICT-students?

D: It’s open for everybody. Even for companies from other regions. The majority is from our graduates because we are the only university which teaches software development in the region. But it’s not a compulsory rule that the students have to come from our university.

T: And those entrepreneurship courses: Are they a part of the curriculum?

D: They are part of the compulsory curricula but actually they are not called entrepreneurship-courses. They are called for example “management and business”. Nevertheless they mainly deal with things like “how to start a business” – What are the regulations? How to create a business plan? – and not how to manage a big company. The courses mainly focus on SME-Management and they are more focused on encouraging entrepreneurship than anything else...

T: Do you have an entrepreneurship chair at your university?

D: We don't have an entrepreneurship chair because in the business faculty there is a professor who teaches entrepreneurship courses for the managements students. But that's not an independent entrepreneurship chair.

Besides at the level of the whole university we have a department which is called “University-Enterprises-Connection”. It's the link between the university and the enterprises. It deals with – internships – practical work/ job offers - research which we can do for the companies – projects that we can do together with the companies. The department which tries to support all the other departments in dealing better with companies

T: What is the main profile of your university?

D: Technical

T: Do you invite guest lecturers for the entrepreneurship-courses?!

D: I think so. For sure I know that the student associations + the ... department invite at least twice a year graduates to tell their successful story. These lectures are very well attended and a good motivation...

T: Do you have some events in your incubator with the main focus on policy makers? (To sensibilise them for the problems of startups)

D: That's a question for Radu (director of Timisoara Software Incubator)... What I can say - for example my department: we're starting a new master degree, the master in E-activities. It will be a lifelong learning degree, for professionals who work already successful and who want to improve their knowledge and their skills. There will be four areas: e-health, e- business, e-media and e-government. For example in the e-business subject there is a course called “Digital Innovation and Entrepreneurship”. It's mainly dealing with digital innovation and asks which innovative tools and skills you can have to improve your startup, your enterprise or your management work. Just to give you an example: We all know how expensive it is to have software, but today there is all a lot of open source software available which won't cost you anything. You just need to know where to find it or someone who can help you to establish and to run it. Further you need lots of tools for management. For example for doing a business plan, mind maps and things like that...

T: Is cost reduction a main / important goal?!

D: We are discussing here about the open education resources which allow you to run or to do the management of the company cheaper? ...my course is about that... I think that's a very good idea... and especially when we are talking about people who are not so young. They don't know so much, not so involved in WEB 2.0...they don't know how to use it for marketing...

T: Why are the students so old?

D: Because they have to pay the fees and it's a very specialized master for professionals - very practically orientated - no research master. You have research masters and specialized masters for lifelong learning degree which is mainly hands on.

T: Last question: what is about our CBVI project? About my work package? What do you think? Feedback?

D: It's quite interesting... Interesting to get a proposal about what you can do as a university... You need to do workshops. For example we do a lot of these things and still we're improving the entrepreneurial... Still very small numbers will start their own company... But we want more, to know about factors which influence if students found their own company or not... This is what I - and also as a university - I would like to know what else and how we can do to improve the entrepreneurial motivation of our students.

Interview with Veronika Černáková and Radoslav Blahovec (Technical University of Košice, Slovakia)

Legend:

- TV – Tatsiana Varabei, University of Wuppertal, Germany
- MG – Marc Gruenhagen, University of Wuppertal, Germany
- VC – Veronika Černáková
- RB – Radoslav Blahovec

Made by Tatsiana Varabei, Marc Grünhagen 5th of December 2012.

RB: Ich heiße Radoslav Blahovec, ich bin fest angestellt an der Universität und arbeite als Assistent des Professors. Meine Aufgaben umfassen die Durchführung von Projekten und Lehrveranstaltungen. Daneben arbeite ich an meiner Dissertation.

VC: Ich heiße Veronica Černáková und ich arbeite ebenfalls als Assistent des Professors. Ich habe bereits meinen PHD, arbeite an verschiedenen Projekten und bin in der Forschung aktiv. Der Schwerpunkt meines Lehrstuhls liegt im Bereich der regionalen Wirtschaft und des internationalen Managements.

TV: Was können Sie über Ihre Fakultät erzählen?

VC: Die wirtschaftswissenschaftliche Fakultät ist recht jung und gerade einmal 20 Jahre alt. Sie gehört zu der TU in Košice. In unserer Fakultät ist es uns sehr wichtig, möglichst viele Partnerschaften mit dem Ausland zu pflegen. Nach einem Ranking in der Slowakei sind wir die beste wirtschaftswissenschaftliche Fakultät des Landes. Wir haben verschiedene Fachrichtungen, wie z.B. Finanzen und Banken, an unserer Universität, möchten uns jetzt jedoch mehr Richtung Entrepreneurship ausrichten.

TV: Wird diese Idee innerhalb der Fakultät angenommen? Gibt es Widerstände?

VC: Ich glaube das ist ein natürlicher Prozess. Das ist ein neuer Trend, und wir versuchen diesem zu folgen. Natürlich machen jetzt nicht alle nur noch Entrepreneurship. Andere Bereiche wie z.B. Mikro- und Makroökonomie sind weiterhin wichtig. Wir versuchen jedoch den Studenten aufzuzeigen, dass es auch andere Karrierewege geben kann, und wollen Sie ermutigen sich mit dem Thema Entrepreneurship auseinanderzusetzen.

TV: Wird die Neuausrichtung auch vom Rektorat gefördert?

VC: Nein, ich glaube nicht. Die Antriebskräfte gehen von der Fakultät aus.

RB: ich glaube auch, dass die Idee vom Fachbereich kommt. Für das Rektorat ist es interessant, wenn verschiedene Fakultäten zusammenarbeiten und kooperieren. Natürlich ist es für das Rektorat sehr wünschenswert, dass Studenten der Universität neue Firmen gründen. Die Nummer ein Ziel des Rektorats ist der Aufbau des Entrepreneurship Accelerators.

TV: Was für Veranstaltungen werden im Bereich Entrepreneurship angeboten?

VC: In diesem Jahr gibt es nur das Basisfach "Entrepreneurship" auf Englisch. Ab nächstem Jahr wird es zusätzlich das Fach "Development of Entrepreneurial Skills" geben. Diese Veranstaltung ist für zwei Semester

angelegt, eher praxisorientiert und soll den Studenten zeigen, wie sie ein Unternehmen gründen, aufbauen und leiten können.

RB: Die Studenten werden in Kooperation mit existierenden Unternehmen mit richtigem Geld arbeiten, investieren und reale Produkte verkaufen oder entwickeln.

MG: Für welche Studierenden soll das angeboten werden?

VC: Für Studierende aus dem dritten Jahrgang der wirtschaftswissenschaftlichen Fakultät.

TV: Ist es geplant später auch Studierende anderer Fakultäten mit einzubinden?

VC: Nein, ich glaube nicht.

MG: Warum?

VC: Weil die Fakultäten eher selbstständig sind und eher ein geringeres Interesse an einer Zusammenarbeit haben.

MG: Was machen Sie genau im Rahmen von Entrepreneurship-Veranstaltung?

VC: Die Veranstaltung richtet sich an Studierende des ersten Jahrgangs. Es ist eine Basisveranstaltung, um grundlegende Kenntnisse zu vermitteln. Wir versuchen die Veranstaltung möglichst so zu gestalten, dass die Studierenden aktiv werden müssen. Sie müssen in Gruppen zusammenarbeiten und sollen hierbei virtuell ein Unternehmen gründen. Hierbei müssen sie die verschiedenen Teile eines Businessplans erstellen und sich mit den verschiedenen Themengebieten, wie z. B. Marketing, Produkttrends, Strategie, Vision, Finanzierung, auseinandersetzen.

TV: Bieten Sie auch Veranstaltungen für Teilzeit-Studierenden an?

VC: Nein

TV: Wer unterrichtet die Teilzeit-Studierenden? Wie ist das organisiert?

VC: Wir bieten eine E-Learning-Plattform auf der die Studierenden alle Materialien bekommen. Darüber hinaus haben die Studierenden die Möglichkeit vier bis sechs Stunden zur Konsultation zu kommen. Über die Plattform werden alle Themenbereiche behandelt, die sonst auch im normalen Studium behandelt werden. Auch Entrepreneurship. Das macht aber ein so genannter Garant, der auch Vorlesungen hält.

TV: Haben Sie Erfahrungen gemacht mit externen Studierenden (Studierende auf der „Fernbasis“)?

VC: Ja, ich bin ein Garant im Bereich „Rural Development“ und dort habe ich auch mit externen Studenten gearbeitet. Oft sind sie nicht so interessiert an dem Studium. Sie haben bereits eine feste Anstellung in einem Unternehmen und so wollen eher nur den Titel haben.

TV: Wie sind die Anforderungen an solche Studenten?

VC: Die Anforderungen sollten gleich sein. Und meistens sind sie auch gleich.

TV: Haben Sie weitere Kooperationspartner, mit denen Sie zum Thema Entrepreneurship im Gespräch sind?

VC/RB: Ich glaub nicht.

RB: Es ist ein großes Problem gute Akzeleratoren und Inkubatoren zu finden. Ich denke, wir sind noch nicht so weit, und wir müssen noch viel lernen, wie wir ein gutes Entrepreneurial Ecosystem in der Slowakei aufbauen können. Ich schätze, es wird so um 3 Jahre dauern, bis wir unseren Akzelerator auf die Beine stellen werden.

MG: Was würden Sie sich noch wünschen an Ihrer Fakultät? Was brauchen Sie noch?

VC: Mehr Geld.

RB: Mehr Geld, das finde ich auch. Aber auch mehr Kooperationen zwischen der Universität und Unternehmen / Intuitionen. Damit die Studierenden sehen können, wie Entrepreneurship oder die Wirtschaft in der Praxis wirklich funktioniert.

TV: Warum funktionieren Kooperationen bisher noch nicht so gut? Wo sind die Schwierigkeiten?

RB: Auf der einen Seite haben wir hierfür kein ausreichendes Budget. Und außerdem denke ich, dass die Unternehmer selbst nicht daran interessiert sind, an der Universität Vorträge zu halten. Wir sollten eine Plattform für diese Unternehmen und Eigentümer/ Gründer aufbauen/haben, so dass auch diese Leute sehen, dass es Sinn macht mit der Universität zusammenzuarbeiten, dass diese Kooperation auch für sie von Nutzen ist.

VC: Ich habe im Rahmen einer Forschungsarbeit sowohl Universitäten und Unternehmen befragt, und beide Seiten zeigten kein Interesse an einer Zusammenarbeit miteinander. Die Universität betreibt meist nur Grundlagenforschung und in der Regel keine anwendungsorientierte Forschung. Von Seiten der Unternehmen werden das Potential und die Möglichkeiten einer Zusammenarbeit unterschätzt. Die Universitäten haben keinen so guten Ruf in der Gesellschaft. Es gibt nur sehr wenige Firmen, die glauben, dass eine Universität ein gleichwertiger Partner für sie ist. Die Universitäten haben zwar Möglichkeiten, den Unternehmen bestimmte Dinge anzubieten, aber niemand will das machen.

RB: Wir haben kein richtiges System, um die Ergebnisse der Forschung und der Universität zu kommerzialisieren.

TV: Haben Sie denn Forschungs-Kooperationen mit anderen Universitäten? Insbesondere in Bezug auf Entrepreneurship?

VC: Ja, diese Kooperationen funktionieren sehr gut. Entrepreneurship ist nur ein Teil.

TV: Zu Ihrem Projekt, Rad, zum Gründungsakzelerator: Wer ist die Zielgruppe?

RB: Die Zielgruppe sind Studenten, Postdoktoranden und Mitarbeiter der Universität Kosice.

TV: Könnte der Ansatz des "distant-learning" bei Ihnen funktionieren?

RB: Ja, das würde vor allem für die externen Studierenden gut passen.

TV: Was sind häufige Schwierigkeiten und Probleme, die im Vergleich zum traditionellen Studium beim Fernstudium und verschiedenen Ansätzen des E-Learnings auftreten? Haben Sie hier Erfahrungen?

VC: In meinem Kurs gibt es keine Probleme. Ich kann mir aber vorstellen, dass es einige Bereiche gibt, wie z.B. Ökonometrie, die sich nur schwer über das Internet erklären lassen. Hier Bedarf es zusätzlicher

Konsultationen in Face-to-Face-Format. Aber ansonsten gibt es weniger Probleme. Es ist meiner Meinung nach ein Vorteil, wenn die Studenten nicht jeden Tag Veranstaltungen haben und nicht immer vor Ort sein müssen.

MG: *Aus Ihrer Erfahrung, was ist besser: Präsenzlehre oder Distanzlehre?*

VC: Präsenzlehre ist besser. Die Studenten, die das Fernstudium machen, sind nicht so an Inhalten interessiert. Sie sind nur an dem Titel interessiert. Aber wenn man teilweise diese Methoden kombinieren kann, finde ich das gut. Z. B. kann man Fallstudien downloaden und online diskutieren. Interaktion mit dem Lehrer und den Kommilitonen ist sehr wichtig. Bei Fernstudierenden ist solche Interaktion oft wenig gegeben.

TV: *Eine letzte Frage zu dem Akzelerator: Ein Virtual-Cross-Boarder-Inkubator sieht vor, dass man auch international kooperiert. Ist das hier eigentlich der Fall?*

RB: In diesem Projekt nicht. Das Projekt ist nur für die Universitäten in der Slowakei. Ich denke, es ist sehr schwer einen internationalen Inkubator/ Akzelerator aufzubauen. Zuerst brauchen wir eigenen guten Akzelerator in der Slowakei, und dann können wir ihn mit weiteren ähnlichen Einrichtungen mit anderen Ländern vernetzen.

VC: Das Backgroundwissen bzw. die theoretischen Entrepreneurship-Grundlagen können in Form von englischsprachigen Veranstaltungen über die E-Learning-Plattform international angeboten werden. Das wäre kein Problem.

RB: Im Bereich von live-Gastvorträgen von Unternehmern können sich Probleme ergeben, da es sehr schwer sein wird, die Menschen zeitlich zu koordinieren. Manchmal hat man auch unterschiedliche technische Kenntnisse, z.B. nicht alle können mit Skype umgehen. Ein Problem wird auch der sprachliche Unterschied sein.

TV: *Wäre eine internationale Kooperation überhaupt denkbar?*

RB: Ja, denkbar in Zukunft schon. Ich denke in der EU können wir so etwas umsetzen. Aber wie schon gesagt: zuerst brauchen wir eine gute Basis, z.B. einen guten Akzelerator in Košice und einen guten Akzelerator in Wien. Erst dann können wir eine solche Internationalisierung vornehmen.

TV: *In welchen Bereichen wäre eine Kooperation denkbar?*

VC: Ich denke in theoretischen Bereichen, bspw. Schulung, Consulting usw.

RB: Und auch im Bereich Finanzierung. So könnte es z. B. für Investoren aus Österreich interessant sein etwas über Startups aus Košice zu wissen. Hier in Košice könnten wir beispielsweise ein Problem mit der Finanzierung eines Biotech-Startups haben, Investoren aus Wien oder Frankfurt hätten aber evtl. gerade hier ein großes Interesse. Ein weiterer möglicher Kooperationsbereich könnte die Hilfestellung bei Erschließung von neuen (ausländischen) Märkten sein.

MG: *Wie schätzen Sie die Möglichkeiten ein, dass die Entrepreneure selbst zusammenarbeiten? Also z. B. Technologiepartnerschaften.*

RB: Ich denke in Zukunft ja, aber jetzt kann ich da noch nichts Genaues sagen.

TV: *Was können Sie abschließend zu unserem Gespräch hinzufügen?*

VC: Ich denke, dass sich in den osteuropäischen Ländern das Denken etwas verändern muss und dann werden auch solche Sachen / Kooperationen funktionieren. Ich meine, die Kooperationen zwischen privaten Unternehmen und öffentlichen Universitäten.

Recommendations

Effective strategies for improving Entrepreneurship education need to be realistic in their ambitions and tailored to each country's situation. Realistic reform strategies have to reflect the different starting points of Member States, their national traditions and economic realities. Given the diversity of experiences and models, the potential for mutual learning is clearly high. Countries can tackle this challenge in different ways, by investing in work-based learning which is tailored to their situation.

Implications - building an entrepreneurial ecosystem

- The university management acknowledges the importance of entrepreneurship, embraces it as a part of the university's corporate vision and acts accordingly to promote its establishment and promotion.
- There are strong, visionary leading figures within the administration of entrepreneurial programs, centers, projects and initiatives as well as in the respective university departments who support the establishment of entrepreneurship in a determined way.
- The commitment of the university management and other leading personalities to entrepreneurship is sustained and permanent.
- There is sufficient funding for the establishment and promotion of entrepreneurship-friendly structures.
- Curricula, teaching programs and teaching methods are regularly adjusted to the latest findings. An appropriate organizational structure is provided.
- The networking with other entrepreneurship-relevant agents within and outside the university is pursued with great commitment in order to reach the critical mass which is necessary for sustainability (cf. Rice et al. 2010).

Implications - general

- Own strengths should be identified and exploited for the development of an own entrepreneurial ecosystem (do not make only a blind copy of successful approaches)
- The commitment of the organization management and other leading personalities to entrepreneurship should be sustained and permanent
- Integrated approach: beginning with motivation and sensitization for entrepreneurship (most incubators concentrate only on consulting or networking services or providing infrastructure).

-> New (=potential) entrepreneurs and important stakeholders should be activated

- Do "technology scouting" – active promotion of entrepreneurship among researcher and inventors (or engineers, chemists, physicist students and so on), not only among business students
- Do public relation work for entrepreneurship: make success visible, improve the image of entrepreneurs, attract relevant stakeholder for entrepreneurship

- Integrate real entrepreneurs as a guest lecturers in entrepreneurship courses (role models)
- Curricula, teaching/coaching programs and teaching/coaching methods should be regularly adjusted to the latest findings
- Incubation services for startups with social value (social entrepreneurship) should be adjusted in order to ensure their sustainability for the time after the incubation

Implications ICT

- Good contents, strong partners, technical support by competent partners and an appealing graphic design
- Follow the “less is more” principle – clarity and transparency of the information are decisive;
- Avoid unnecessary technical features – in most cases standard solutions are sufficient which in addition reduce dependency on external providers;
- Create transparent structures through specific contents;
- Draw up a time and money budget for the creation and administration of the platform (do not count on voluntary commitment which may not be sustained);
- Clarify and define areas of responsibility;
- Budget resources in order to be able to react to improvement suggestions;
- Draw up a realistic and differentiated list of duties if an external provider is needed for the technical realization – it may be very helpful to involve the internal IT department;
- Offer incentives for active use – the added value of using the platform should be immediately recognizable for the target group;
- Cooperate with other similar platforms and exploit synergies;
- Use existing established social networks as Facebook, LinkedIn, Google+

ICT usage in incubators

- implement tools as e-mails and web pages (more formal communication) are mostly used.
- Big differentiation of using other, more sophisticated, custom or even open solution.
- High level of no ICT support in match-making with investors (one of the main incubators function).
- High position of using Intranet in internal communication in incubators.
- ICT is almost not used in training or consulting services provided for start-ups.
- Taking into geographical localization (country) of incubators the differences in using of particular ICT tools could be observed.

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