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Promoting Successful
Graduate Entrepreneurship
at Fachhochschule
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PROMOTING SUCCESSFUL GRADUATE ENTREPRENEURSHIP

AT FACHHOCHSCHULE BRANDENBURG, GERMANY

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This report presents the findings of a review of current strategies and practices in entrepreneurship support provision at the Fachhochschule Brandenburg. The report also presents a selection of international learning models with the aim of providing inspiration for new approaches at the Fachhochschule Brandenburg.

This report investigates the following questions:

- What are current strategies and practices in university entrepreneurship support?
- How accessible is entrepreneurship support for students and graduates?
- How well is the university entrepreneurship support integrated into the wider local entrepreneurship support system?

This report presents achievements and challenges in light of the above questions and advances recommendations for future action. The assessment framework employed for the review is presented in the Annex of this report.

The report is based on a background report prepared by region+projekt, interviews held during a study visit to Fachhochschule Brandenburg from 15–18 November 2011, and comparisons with international experiences and good practices in university entrepreneurship support. The Fachhochschule Brandenburg is one of six case-study higher education institutions that are reviewed as part of an on-going joint project between the LEED Programme of the OECD and the German Federal Ministry of Interior. The following ministries in Brandenburg have been the main partner institutions at Land level: Labour, Social Affairs, Women and Family; Economy and European Affairs; and Science, Research and Culture.

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STRATEGY AND ENTREPRENEURSHIP SUPPORT AT FH BRANDENBURG

Entrepreneurship as a mission

The FH Brandenburg is a relatively young university for applied sciences and plays a role in supporting regional development. While it has three departments: Engineering, Informatics and Media, and Business and Management, the FH Brandenburg specialises in Informatics and Business Informatics and has special study programmes in Security management, Medical informatics and Energy efficiency.

A general observation is that, at all levels of decision making, the FH Brandenburg takes entrepreneurship seriously and believes that it is an important driver for regional growth and development. Since 2002, the university has been working to establish itself as an entrepreneurial university and has accomplished a great deal. However, there is still much to do to before formulating a sustainable university strategy that demonstrates how to implement entrepreneurship across the university, and how the university co-operates with external organisations to fulfil this particular mission.

The FH Brandenburg has a rector who believes that entrepreneurship is important and should be taken seriously. The leadership function is quite well informed about the ongoing activities that promote entrepreneurship through education, training and start-up support at the university as well as, understanding the strengths and weaknesses of these offerings. A chair in entrepreneurship was recently established; hence, promoting entrepreneurship is a mainstream activity of the FH Brandenburg. It not only focuses on the foundation of new companies, but more importantly for the region, it also covers the issue of business succession. The FH Brandenburg promotes graduate entrepreneurship actively via its participation in the BIEM (Brandenburg Institute for Entrepreneurship and SME), the establishment of the GründungsZentrum and an entrepreneurship professorship, located in the faculty of Business and Management.

All universities and universities for applied sciences (“Fachhochschulen”) have a number of tasks: education, research and the so-called “third task”. This “third task” refers to the way that the university is engaged with its environment and the mechanisms for this engagement. This is known in the academic literature by a variety of names: knowledge- and technology transfer, outreach, entrepreneurship, etc. Universities engaged with their environment are sometimes called “entrepreneurial universities”. Although introduced by Davis (1987), it was Clark (1997) who developed the concept and characteristics of entrepreneurial universities and these will be related to the FH Brandenburg:

- *A strengthened steering core*: this concerns the internal organization of a university, particularly its leadership, vision and strategy. The entrepreneurial activities of the FH Brandenburg are substantial and are considered important by the Executive Board of the university. There is a clear vision for the future and entrepreneurship and entrepreneurial activities are part of this. The process of anchoring entrepreneurship in the FH starts with education – making entrepreneurship education part of the university curricula. The FH

Brandenburg promotes graduate entrepreneurship actively via its participation in the BIEM (Brandenburg Institute for Entrepreneurship and SME), the establishment of the GründungsZentrum and a professorship in the faculty of Business and Management. Entrepreneurship is a mainstream activity of the FH that not only covers the foundation of new companies, but also business succession.

- *An expanded developmental periphery:* a university should interact with its environment and community through a special organizational unit (a transfer or an entrepreneurship office) or through its research and teaching. Regardless, it should be identifiable as a “function” within the university. In the FH Brandenburg there is an entrepreneurship unit (“GründungsZentrum”) which acts inside the university as well as outside (in the region) and is part of the BIEM (and FH Brandenburg). Although the majority of entrepreneurship activities go through GründungsZentrum (and BIEM), other related activities are ongoing at FH Brandenburg. For example, the amount of money coming from contract research with industry and subsidies from governmental agencies (“Drittmittel”) is substantial and growing.
- *A diversified funding base:* a university should not depend solely on government funds, it should seek to attract other funds, e.g. from the (local and regional) community, companies, international bodies and NGOs. As mentioned above, the amount of non-regular educational resources at the FH Brandenburg is growing and already accounts for a substantial part of the university budget. Over the previous 4 years, it has more than doubled and presently amounts to approximately EUR 2.4 million.
- *A stimulated academic heartland:* a university should have a strong backbone in research and it should stimulate interdisciplinary and transdisciplinary research and teaching. The FH Brandenburg is a relatively young university, with three core departments and specialty areas in informatics (general, business and medical), security management and energy efficiency. It stimulates those special chairs (“Stiftungslehrstühle”) and “mini chairs” (“Schirmherrschaften”) to strengthen the ties with the community in order to enhance its research.
- *Incentive system for professors and other staff:* a university should provide incentives to staff to be involved in entrepreneurship research, education and start-up support activities to stimulate activities in these areas. The incentive system for academic staff at the FH Brandenburg presently covers two domains. The first domain for which incentives can be granted is “publication” (research), and the second domain is “third stream money”, meaning contracts (projects) from public (local, national, transnational governments) and private organizations (companies and organizations representing companies). Another available incentive is a reduction in the amount of teaching (four hours per week per semester). Including entrepreneurship and entrepreneurship education in the incentive system by appointing academic staff as “entrepreneurship champions” for a certain period of time, especially in the departments of Engineering, and Informatics and Media, would give entrepreneurship more visibility.
- *A new institutional ideal:* In an entrepreneurial university there ought to be an atmosphere of enterprising behaviour, entrepreneurship and innovation in all the layers of the organization, the management levels.

In conclusion, the FH Brandenburg works on all aspects that are considered elements of an entrepreneurial university. Entrepreneurship is one of the strategic objectives of the university and is

actively supported from the top of the organization. However, more can be done to make entrepreneurship more visible in the university vision and strategy statements. Strategic documents that address entrepreneurship should define the university's concept of entrepreneurship and how it is translated into the FH Brandenburg context (internally and externally), including how it fits into the curriculum. These documents could also outline the incentives used to promote entrepreneurial behaviour by its employees. The development of such positions should involve people at various levels and positions within the university and representative from the external environment. A particular focus should be to create synergies between all three university tasks – teaching, research and outreach activities – which characterise an entrepreneurial university.

Moreover, entrepreneurship is more than just creating a company, it also is a mindset or way of "life". This implies that entrepreneurship and entrepreneurial skills are "useful skills" for every student when the focus of teaching is not just on starting a company. Regardless of the entrepreneurial concept adopted (new company, business succession), awareness of entrepreneurship as an alternative career choice is important. It is suggested that the FH Brandenburg widen its concept of entrepreneurship, and as a consequence, the entrepreneurship activities that it undertakes.

ENTREPRENEURSHIP EDUCATION

Location of entrepreneurship education inside the FH Brandenburg

An important aspect that is often taken for granted is the home base of entrepreneurship education. There is a variety of models used by universities:

1. Entrepreneurship education has its base in business studies and/or social sciences;
2. Entrepreneurship education has its base in exact, natural or technical sciences (including medical and pharmaceutical studies);
3. Entrepreneurship education has its base in both type of studies / departments; and,
4. Entrepreneurship education has its base as an interdisciplinary centre independent but related to both types of studies / departments including the humanities, as well as artistic studies.

The location of the entrepreneurship education almost always determines the content as well as its target audience. For example, locating entrepreneurship education in the Business and Management Faculty will attract more students from this faculty than it will from other faculties – if only for the fact that the course is given outside the students' own faculty. Often, its location reflects the origin of the initiator. Notwithstanding its location, entrepreneurship education should be open to all students, and students from different faculties should work together, participating side-by-side and universities should facilitate this by harmonizing the planning of the curricula. This “cross-fertilization” from different faculties bears fruit – meaning interesting entrepreneurial activities.

The location of entrepreneurship inside the FH Brandenburg is primarily in the Faculty of Business and Management. A recommendation is to broaden the entrepreneurship base in the FH and extend it also into the other faculties structurally and in particular, to make it more visible. The latter might be easier to achieve given the enthusiastic and professional entrepreneurship support team. A long-term recommendation is to open up these courses for all students of the FH Brandenburg. This requires the harmonization of the academic timetables of the faculties and the ‘crediting’ of the courses. This can be both promoted and facilitated by the rector's office. Harmonization of the curricula could also be beneficial to exchange knowledge and experience between lecturers in both faculties. In the situation of the FH Brandenburg the activities of the GründungsZentrum could, if more closely connected to the primary process, play a pivotal role in both.

Awareness creation and raising the attractiveness of entrepreneurship education

Although entrepreneurship is something that should be attractive to many students both as a topic for a course at university as well as a career choice, in practice it is not. Students should be made aware of “entrepreneurship” and only when they are aware of it and its implications so that a deliberate choice to pursue it can be made. Since most universities around the world offer

entrepreneurship education and courses on a voluntary basis (entrepreneurship as elective courses¹), the creation of awareness is important. After awareness is created, students can make informed choices about their participation in (elective) courses on entrepreneurship and other activities to make up their minds about the role of entrepreneurship in the rest of their professional lives.

The creation of awareness for entrepreneurship is an important activity at universities in general, that foster this concern and promote entrepreneurship in a systematic manner²:

1. Getting the students' attention: a first step in the creation of awareness is to get the students' attention. Students can be made aware of entrepreneurship and entrepreneurship courses through both formal and informal ways. When entrepreneurship is in the "veins" of the university ("the entrepreneurial university") and incorporated in the culture, entrepreneurship is promoted throughout all activities at the university: entrepreneurs participate in courses (as guest lecturers – not only on the content of the business, but also relate this to entrepreneurship and entrepreneuring). Nevertheless, entrepreneurship should more intensely be formally promoted via announcements in the media (Internet, university newspaper, etc.), via posters and promotional talks throughout the university plus a "back office" for further services.
2. Getting the students interested: a second step in the process is the follow-up of the awareness creation – students are aware of what entrepreneurship is, but is it something useful for them? Through various activities the students can get interested in taking up entrepreneurship in a more systematic way, for example:
 - A business plan competition (as the BPW) is a good tool to create awareness and promote entrepreneurship.
 - Extracurricular seminars ("Ringvorlesungen") by entrepreneurs, e.g. start-ups in co-operation with entrepreneurship associations.³
 - Low threshold workshops (ranging from 2 hours to one day) for students on topics that give students a better understanding of what entrepreneurship is about.

All activities should be aimed at making entrepreneurship attractive for students, either as something they find important for their lives and careers, or as a topic they want to know more about before they (can) decide whether or not it "fits" them. Anyway, the creation of awareness among students should lead to a "desire" to know more about entrepreneurship and sign up for one or more courses in the field of entrepreneurship.

FH Brandenburg implements this approach and follows good practices in this respect. For example, GründungsZentrum promotes entrepreneurship education programmes with posters, newsletters, online through their website and with an extensive social media campaign. In addition, they use events to give lectures and make speeches to draw attention to the offerings.

¹ The University of Ulster is one of the universities with a mandatory introductory course in the first year of all study areas. Through this mandatory course all students come in contact with entrepreneurship.

² We follow here the AIDA model of marketing: Attention, Interest, Desire, Action.

³ Presently, there are a number of entrepreneurship associations in the city and region of Brandenburg that can be involved in the entrepreneurship activities of the FH Brandenburg.

Widening the current target group

Until some 15 years ago the regular perspective of students graduating from a university was to take up employment in a company. This picture has changed and the reasons for this are twofold: (1) the employee-employer relationship is changing and life-long employment with one enterprise is no longer the norm, (2) students at universities are becoming increasingly aware of entrepreneurship as a career option, which means that graduates either look for employment in both large and small companies and organizations, or consider starting their own enterprise. The pursuit of entrepreneurial opportunities in the context of companies and organizations is also becoming more and more important and this gives rise to, what can be called, an entrepreneurship industry as well as a demand for entrepreneurial professionals.

The target groups for entrepreneurship education include both those students who consider setting up their own enterprise (“Existenzgründung”) and also students who seek employment in small and larger companies (“intrapreneurship”). But there is also a third target group, the entrepreneurship industry, which is the branch of the service industry that supports entrepreneurship and that needs to understand what entrepreneurship is about. This means that there is an abundance of target groups a university could focus on:

Students:

- Ph.D. students, who do a doctoral programme in Entrepreneurship with the emphasis being on theory/science.
- Ph.D. students, who do a doctoral programme in a specific domain but includes entrepreneurship and/or valorization into their studies.
- DBA students, who do a doctoral programme that is more practice-oriented in comparison to the Ph.D. programme.
- MBA students, who take entrepreneurship as one of the courses in their programme. Most of the time MBA students are mature students, who after some work experience return to the university; the programme is practice-oriented.
- M.Sc. students, who do a Masters programme in Entrepreneurship or take entrepreneurship courses in their Business Administration programme, and follow a more scientifically-oriented programme; most of the time the students do not have relevant work experience.
- M.Sc students, who do a Masters programme in a specific domain and want to specialize in one way or another in entrepreneurship.
- Bachelor students, who could participate in entrepreneurship activities in a number of ways:
 - Introductory course in Entrepreneurship for all students;
 - Elective Minor programme in Entrepreneurship for all students;
 - Bachelor programme in Entrepreneurship or with a focus on Entrepreneurship;
 - Extracurricular courses for interested students;

- Student-entrepreneurs: students who have a registered company.
- Graduate entrepreneurs: students who just finished their studies and start a company.

Entrepreneurs:

- Starting (young) entrepreneurs
- Experienced entrepreneurs: entrepreneurs with some years of experience.

Professionals:

- Professionals in the service industry connected with entrepreneurship (e.g. business consultancy, financial sector – venture capital)

Most universities focus on the regular group of students, both Bachelor and Masters, who are brought together in a series of courses with the view of learning about entrepreneurship. Although the “other” target groups are not really target groups for a university, the involvement of these target groups could be explored to both enrich the curriculum of the regular university students as well as provide (extra) income for the university.

Currently, the target group for entrepreneurship education at FH Brandenburg is students. It is suggested that other groups are included in entrepreneurship education. For example, existing entrepreneurs could be included as an add-on, or an extra dimension of “regular” entrepreneurship education. The current activities on business succession provide an excellent starting point to build on. In such an approach, entrepreneurs are brought together in a training course, where they, for example, conceive their new business plan (incorporating business succession) and students who do their regular entrepreneurship course work side-by-side with entrepreneurs and support them in conceiving and writing business plans. Students, in this way, gain insights into the operation of companies, while entrepreneurs get extra “hands” and a potential successor (if the two match). Such a formula in which teaching and training are integrated can also be a source of (extra) income for the FH Brandenburg.

Entrepreneurship is not only a topic for future entrepreneurs, but also for all other professionals who support entrepreneurship. This means, that the scope of entrepreneurship education can be widened to include topics such as:

- Entrepreneurship policy (that is, courses tailored to the needs of people working in government organisations that promote entrepreneurship);
- Entrepreneurship and consultancy (including topics as coaching and mentoring);
- Financing entrepreneurship;
- Teaching entrepreneurship.

The first two points are what BIEM seeks to achieve. As Müller and Diensberg write in a recent BIEM publication: “Everyone can call him- or herself an (entrepreneurship) consultant, trainer or coach. There are no professional standards, no minimum requirements, which could give orientation to young founders or business people”. BIEM recognizes these issues and tries to implement a solution on the level of the region. The FH Brandenburg could consider a more structural approach and develop, step-by-step, a curriculum for these types of entrepreneurship. The FHB could even consider

offering (in time) developed courses (for the curriculum) alone or together with BIEM as post-experiential courses to the market and by doing so to take the lead in setting standards for this particular domain.

Alumni are a target group with special value for universities. When a university focuses on entrepreneurship, this (target) group can have an important role as participants in entrepreneurship courses, providing students with entrepreneurial assignments as role models or as potential investors in university start-ups. In short, alumni should be participants in entrepreneurship.

See the Business Development Programme at the Linköping University in Sweden as an example of how alumni can be incorporated into entrepreneurship activities.

Approaches to entrepreneurship education

There are many approaches to entrepreneurship education and there are at least four different conceptualizations on which the entrepreneurship curricula can be based:

1. **Entrepreneurship = a process of realizing opportunities.** In the literature on entrepreneurship over the last 10 years there is an emphasis on entrepreneurship that is viewed as a process of opportunity discovery, exploration and exploitation. In a curriculum following this conceptualization, the emphasis is on “what are opportunities?”, “how do opportunities arise?”, “how can opportunities be evaluated?”, etc.
2. **Entrepreneurship = a set of competencies.** Entrepreneurship is a set of competencies that a person should have. In a curriculum with this approach the emphasis is on the acquisition of (personal) skills.
3. **Entrepreneurship = starting a company.** Entrepreneurship is seen by many as starting a company on the basis of a business plan or a business model. The curriculum reflecting this approach deals with issues that are related to the business plan, e.g. the business idea, the market, the financial plan, etc.
4. **Entrepreneurship = the management of a small company (SME management).** Entrepreneurship according to this conceptualization sees management of the processes as the most important issue and regards a small company as the “little brother” of a big company and its management. In such a curriculum we find topics or modules on “finance”, “strategy”, “marketing”, “management skills”, etc.

Each conceptualization has its own merits and most university curricula are a combination of two or more approaches. The concept of entrepreneurship shaped in the curricula of the FH Brandenburg presupposes, that entrepreneurship is first and foremost about “starting a company”, taking on board elements of the “skills” approach and the “SME management” approach. The latter is particularly visible in the Department of Management and Business where “business succession” is promoted, meaning the “take-over” of the ownership of a company from a previous owner who decides to stop his/her involvement with the company for a diverse set of reasons (such as retirement). Entrepreneurship can also take shape in an existing company (corporate entrepreneurship, intrapreneurship) and sometimes it takes place in the community. Entrepreneurship is more than just creating a company, it also is a way of “life”. This implies that entrepreneurship and entrepreneurial skills are “useful skills” for every student when the focus of teaching is not just on starting a company.

Entrepreneurship education and research

Research is by law a task for the universities of applied sciences (Fachhochschulen) in Brandenburg. The FH Brandenburg is successful in the acquisition of third-stream funding, which more than doubled over the past 4 years to a current amount of approximately EUR 2.4 million. Although the acquired money is primarily meant to be used for the said purpose and objectives, it is, however, suggested to incorporate entrepreneurship and the development of entrepreneurial activities (by students) more explicitly into the project proposals. The rector's office could support this intention as a policy guideline in the acquisition of third-stream money projects.

Although the nature of research at Fachhochschulen is different from research at universities, the FH Brandenburg is working together with the University of Magdeburg to establish a co-operative graduate school. Since research at Fachhochschulen is closely connected with practice ("praxisnah") it is suggested to incorporate this practice orientation (entrepreneurship, technology transfer) into the Ph.D. trajectories initiated by the FHB.⁴ With the emphasis on entrepreneurship and business succession, the FH Brandenburg can profile itself inside and outside of the Brandenburg region. Research, teaching and enterprise creation and business succession can be integrated. At the FH Brandenburg teaching and enterprise creation and business succession are connected, and efforts should be made to integrate these activities on a more strategic basis. Also research could be part of this and in view of the remark above, bachelor and masters students who do research should also be encouraged to elaborate the "entrepreneurship" aspect of their research. BIEM can play a role in this.

It should be positively noted that the results of the already existing entrepreneurship research at the FHB flow into start-up support activities. More Ph.D. and DBA students could be recruited to extend entrepreneurship research. This is a long-term project but it is necessary to secure the research competence to be able to develop new academic courses and programmes, for example, be a competent part of the academic community and last but not least to be able to compete on the international publishing arena. Furthermore, a stronger strategic connection between the departments of the FH Brandenburg and its entrepreneurship education should be encouraged. This could happen, for example, in the form of idea scouting and research seminars, which could motivate more students and professors to engage in the commercialisation of research results.

Evaluation of entrepreneurship curricular activities

The FH Brandenburg could make an inventory of the entrepreneurial competencies and skills in the non-entrepreneurial courses in order to determine how entrepreneurship is embedded in the FH Brandenburg.

Many entrepreneurship activities are going on at the FH Brandenburg, but no formal, entrepreneurship-specific evaluation activities that go beyond simple basic key data such as the number of participants are undertaken. Facts and figures are available on the participation in the Business Plan competition and the number of Existenzgrundungen. It is suggested that the FH Brandenburg evaluates the impact the education programmes have on (a) the students, (b) the curricula, and (c) the whole of the FH Brandenburg in terms of entrepreneurial intentions, competences, and success. This would require a specific work-stream on evaluation which would also include long-term evaluation measures. (Since evaluation has been a recurrent topic in all six case studies, a guideline on the evaluation of entrepreneurship education and start-up support will be included in the final aggregate project report.)

⁴ The FH Brandenburg indicated that it co-operates with universities in order to enable Ph.D. trajectories in the near future.

START-UP SUPPORT PROVISION

Interest in determining the necessary conditions for creating new businesses has intensified. An essential factor in new business creation is often the presence of an entrepreneurial university that is capable not only of advancing emerging areas of knowledge but also of putting this knowledge to use in developing the local region (Clark, 1998; Cooke, 2002). Seen in the light of research (Klofsten and Jones-Evans, 2000) and from a practitioner viewpoint, academic entrepreneurship plays a vital role in spin-off creation.

In the Region of Brandenburg there are entrepreneurial activities going on that can be characterized as the creation of awareness for (the promotion of) entrepreneurship. Many lectures and presentations are given to a general audience of those who are interested in entrepreneurship. It is suggested that the FH Brandenburg taps into these sources of information by giving organizations the opportunity to organise those lectures and presentations at the FH Brandenburg and announce these activities among students and staff. The activities in the region are to be characterized as “extracurricular”, while the topics in many cases are highly relevant for the majority of students. The FH Brandenburg should try to incorporate some of these into the curriculum of (especially) the technical departments, either as “extra” but tailored to the needs of the students, or as (part of) regular classes.

From the meetings with the representatives of the FH Brandenburg and of the region it has become clear, that although the start-up rate in this part of Germany is rather high, the students do not encounter many entrepreneurs during their student career. It is suggested that students and entrepreneurs should be in more and closer contact in order to make the students aware of the opportunities of entrepreneurship. Two routes are proposed:

1. The start-ups of the FH Brandenburg should be encouraged to form an association. Through this association the FH Brandenburg can track of entrepreneurs with roots in the FHB. This association can be used as a vehicle for the creation of awareness in the student population (“show and tell”). There already exists an association of female entrepreneurs, some of them have their roots in the FH. Tapping into this potential for the creation of awareness would be of great benefit for students.
2. It is suggested that the FH Brandenburg should look into “holding classes” in places where students are likely to meet entrepreneurs. For example, by making better connections with the TGZ by using its facilities for teaching and meetings with entrepreneurs as long as funding streams allow.

The FH Brandenburg is today an important actor within the regional community (which consists of various stakeholder networks) that aims to provide hard and soft resources to facilitate entrepreneurial processes. Through that network FH Brandenburg gets access to crucial complementary human and financial resources to run their entrepreneurial activities.

Although the dominant concept of entrepreneurship that shaped the curricula and start-up support services at FH Brandenburg is focussed on business start-up, the concept of entrepreneurship also

includes business succession. FH Brandenburg has numerous ongoing activities that promote and support business succession and many of these are good practices. For example, the issue is included in teachings, including the use of business succession planning games, the university holds regular information events, orientation sessions and conference.

In addition, there are several initiatives outside the FH Brandenburg, which are promoting academic entrepreneurship. It seems that links between university-internal support and external support providers are not as developed as they could be. Initiatives appear unaware of each other's activities, they overlap or simply don't co-operate. It is therefore suggested that the FH Brandenburg takes a more concrete visible leadership role to establish a regional co-operation. Networking between different types of organisations and all forms of decision levels is needed.

There appear to be communication gaps at the FH Brandenburg. Many (teaching) staff members include entrepreneurship in their classes (some directly, some indirectly). These staff members, however, are not always aware of what others are doing. Hence it is suggested that the FH Brandenburg organises special meetings to stimulate exchange and co-operation. This could serve a dual purpose: (1) the recognition of entrepreneurship as an important topic with "visibility" at the FH Brandenburg, and (2) the meetings could serve as places for the exchange of experience and knowledge on entrepreneurship teaching, as well as exchanging contacts. In addition to the organisation of this special meeting the FH Brandenburg should further develop its incentive scheme for academic staff members to encourage them to get involved in entrepreneurial activities.

The FH Brandenburg needs to develop, together with all involved internal and external actors, a professional slide presentation and booklet, respectively, of the on-going and planned entrepreneurship related activities which would make it easy for those interested in the area to find relevant information about who is doing what and what is actually going on. Such a presentation should ideally be available in German as well as in English. English material would help to reach foreign students. It must not be forgotten to highlight good examples of initiatives as well as entrepreneurial champions.

At present, entrepreneurship education and start-up support at the FH Brandenburg are financed from different sources. This makes it rather difficult to organise and coordinate special initiatives and interfaces. It is recommended to develop a strategy that establishes and connects "configurative" support (hard resources, e.g. money, premises) and "process-oriented" activities (soft resources, e.g. coaching, mentoring, workshops).

The practical implication would probably be that one actor takes the lead of running research and organising credit-based courses in entrepreneurship. A second actor will run training programmes and networking activities for entrepreneurs and a third actor takes care of the incubator and (potential) science park management. It would not be a good idea to mix "configurative" and "process" orientated activities under the same 'roof', but all three actors should co-operate closely, e.g. a joint advisory board led by a chairperson who has a background in, and understands, the academic system. Summary of key challenges and suggestions for future activities

SUMMARY OF KEY CHALLENGES AND SUGGESTIONS FOR FUTURE ACTIVITIES

All elements that make up an entrepreneurial university are present to some degree. However, there are a number of possibilities for further development.

1. **Entrepreneurial University:**
 - a. The university should examine whether there are opportunities to better support the exploitation of intellectual property through graduate entrepreneurship and activities.
 - b. Expand entrepreneurship (education) beyond the current faculties throughout the whole of university.
 - c. The development of incentive schemes for staff to promote and support entrepreneurship and entrepreneurial activities.
2. **Target groups for entrepreneurship:** As the emphasis of most universities is on (regular) students, the FH Brandenburg could explore how other target groups can be brought into the university to facilitate the educational programmes for the regular students. Especially the role of alumni and alumni-entrepreneurs should be taken into account and already existing activities should accordingly be exploited.
3. **Entrepreneurship education - conceptualizations:** Entrepreneurship, as recognized by the FH Brandenburg, is more than just creating a company, it also is a way of “life”. This implies that knowledge about entrepreneurship and entrepreneurial (and intrapreneurial) skills are “useful skills” for every student even for students who will never be an entrepreneur. Here lies a challenge for the FH Brandenburg.
4. **Location of entrepreneurship:** The FH Brandenburg should explore the possibilities of creating entrepreneurship education that is accessible at the same time by students from the whole of the university, so that the business and technical students can profit from each other’s knowledge, networks and experiences.
5. **University-internal promotion of entrepreneurship:** Many activities with regard to the promotion of entrepreneurship already take place. A suggestion for the FH Brandenburg is to bring all activities into relation with each other and (re)consider its place in the process of promotion. The AIDA model could be a useful “instrument” to streamline these activities.
6. **Making the local entrepreneurship support system in Brandenburg city visible and accessible.** The FH Brandenburg today is an important actor within the regional community (which consists of various stakeholder networks) that aims to provide hard and soft resources to facilitate entrepreneurial processes. It is therefore suggested that the FH Brandenburg takes a more concrete visible leadership role to establish a regional co-operation model á la BIEM. Networking between different types of organisations and all forms of decision levels is needed.
7. **Consider the introduction of post-start-up support programmes.** Finally, the entrepreneurship support is limited to the start-up stage of firms. There are no post start-up programmes or other activities developed to facilitate further growth and development of

such firms. Those actors involved in training start-ups should consider broadening their activities to include the needs of post start-up entrepreneurs. This could be done through arranging various growth programmes but also developing Science Park like facilities to better-fit growth companies

8. **Evaluation of the entrepreneurship education and start-up support activities:** A challenge for the FH Brandenburg is to map their entrepreneurial ecosystem. It is a rich system, but its totality can be made more visible.

The factors that constitute effective support to companies – and especially, what conditions enhance rapid company growth and thus higher employment and prosperity – has been a topic of extreme interest to policy makers. But despite this interest, actual policy interventions that focus on the needs of existing business owners are low in number. What should interest academics and policy makers, and what they should recognize, is that the BDP programme – with its informal, flexible, and needs-orientated approach – has succeeded in providing valuable support to its participants.

The learning style developed through successive programmes encourages communication and collaboration – between and within competing sectors. BDP's open style of learning differs from the top-down, structured approach that is normally used in other business support programmes, where experts provide advice and support and participants play a more passive role. Future policy interventions in enterprise development should mandate open styles of learning that (i) are based on informality and flexibility, (ii) encourage direct, active participation, and (iii) reflect the needs of the businesses. Recruitment of a committed programme director with a successful entrepreneurial track record is vital to the success of any programme.

INTERNATIONAL LEARNING MODELS

The following seven learning models presented are policy initiatives or university-based actions that seek to promote action-oriented approaches in entrepreneurship support. The table below presents and overview of the initiatives and their core approaches.

Learning model	Motivation for inclusion as a learning model
Venture Lab (University of Twente)	<ul style="list-style-type: none"> • A university and a university for applied sciences co-operate. • The participants are students of both academic institutions as well as entrepreneurs, so young and established entrepreneurs meet in the Venture lab and can exchange information and experiences. • The participants meet on a regular basis venture capitalists, researchers, consultants, policy makers etc.
Director's course Innovative and entrepreneurial management (TSM Business School)	<ul style="list-style-type: none"> • The target group for the director's course is students and entrepreneurs. Both participate for their own reasons and objectives. • The owner-managers who participate pay a course fee, while the students receive for their services study credits. • Students get an inside view on enterprises seen through the eyes of the owner-manager.
Business Development Programme (Linköping University)	<ul style="list-style-type: none"> • Targeted at knowledge-intensive firms that have left start-up stage and are developing growing businesses • Practically orientated programme based on the actual business development needs of participating entrepreneurs and firms
Minor Entrepreneurship (VU University Amsterdam)	<ul style="list-style-type: none"> • A different target group – students who find entrepreneurship interesting from the point of view of an “entrepreneurial professional”. • Students get acquainted with other aspects of entrepreneurship than setting up a new company.
Science Business & Innovation (VU Amsterdam)	<ul style="list-style-type: none"> • SBI is an example of how entrepreneurship and innovation is incorporated in the exact sciences.
Idea Mining (University of Münster)	<ul style="list-style-type: none"> • Idea Mining is an example of a one-day workshop to raise awareness for entrepreneurship and innovation.
Incentive schemes (University of Ulster and FH Münster)	<ul style="list-style-type: none"> • Staff promotion criteria include “academic entrepreneurship” • Incentives include additional funding and a space allocation scheme (Raumhandelsmodell).

Transferability is always a difficult aspect of learning from others as no experience is directly transferable without any adaptation for context. It is important to identify the core of the idea from the model (de-contextualise) and this element needs to be adapted to the specific characteristics of the FH Brandenburg (contextualisation). The experiences (and results) of the other universities are of value to convince relevant parties to participate.

Box 1. Venture Lab Twente

VentureLab Twente offers business development support for technology-based start-up businesses and is a business growth accelerator for well-established companies. The one-year business development programme jump-starts and provides sustainable growth for young businesses, as well as long-standing companies, which aim to grow further and more rapidly. VentureLab Twente is developed by NIKOS, the University of Twente's Expertise Centre for Technology-based Entrepreneurship, around its model of entrepreneurial value creation (see Figure). This model describes the critical factors required to do business successfully. The key to launching a company on the market as effectively as possible does not only concern the idea, but also all the entrepreneurial competences (of its entrepreneurs) that form the basis of a successful



business operation. It takes many steps to move from idea (opportunity recognition) to business model (opportunity preparation), to running a fast growing, technology-based business (opportunity exploitation). These steps are impossible for one person to envisage, coordinate and take. Building a business, let alone a fast growing company, requires teamwork.

VentureLab Twente combines the business development support experience and networks of NIKOS and SKIO, the Saxon Knowledge Centre for Innovation and Entrepreneurship.

The nucleus of the Venture Lab is formed by its Business Development Programme. Because of the extremely diverse background of the participants (enterprising persons, including students) and their companies, VentureLab does not offer a traditional training programme in which every participant enters the programme at the same time, follows the same training programme and finishes at the same time. Instead, VentureLab offers a continuous supply- and demand-oriented training programme, which has no obligatory courses and is highly flexible and customisable. This design allows for differentiation in level of experience and phase of business development, enables participants to spend as much time on the course as they need and are able to, and makes it possible to attend the right training at the right time. Nevertheless, every Friday a business development training is programmed. A typical training day offers four half-day workshops to choose from on topics from these six areas:

1. Strategy
2. Commercial Management
3. Finance
4. Technology Management
5. Organisation
6. Personal and team skills

A personal coach supports the participant to make a decision which trainings to follow. Apart from the participant's expressed needs, this choice is based on the assessment of the participant's entrepreneurial competencies and the development phase of his/her company in terms of personal-, team- and business development. This assessment is translated into a personal development plan. Apart from this training day, additional services and activities are available and offered on request, for example:

- Extra (skills) training (for example English, responding to public tenders).

- A monthly opportunity for consultation of a representative of the Business Angels network “Meesters van de toekomst” (Masters of the Future).
- A meeting with a trainer, to help participants in translating what they have learned into their own situation.
- Personal meetings with internationally recognised experts
- Events, training, workshops organised by and for participants themselves
- Progress on personal-, team- and business development is monitored
- Weekly progress reports that provide your coach with input for your coach meetings.
- Your personal development plan
- Three-monthly presentations to a business panel. The panel consisting of experienced entrepreneurs, investors, trainers or other experts provides feedback to the presentations.

The VentureLab is an example of the co-operation between a university and a university of applied sciences, further in the programme the participants (a student, a graduate, an entrepreneur) meet each other and meet with a variety of experts both in formal and informal settings.

For more information: <http://venturelabtwente.nl/>

Box 2. Director's Course Innovative and Entrepreneurial Management (IEM) – TSM Business School

. This practice-oriented course is targeted at owner-managers of small and medium-sized enterprises in the manufacturing and service industry. Participants work on concepts related to their business idea to develop a new business plan. The participants learn from each other as well as from the lecturers. Lecturers who have been working in the day-to-day practice of running a business. All participants have a student from a university or a university for applied sciences assigned to them for the duration of the course.

The course consists of a number of modules delivered over a period of about 6 months:

- Strategy and Marketing
- Finance
- Innovation
- Personnel and organisation
- From plans to business plan

The success formula for this course is not only the content and the expert lecturers who teach the modules but primarily the role of the student. Each participant gets a student assigned to him or her for the duration of the course to support the entrepreneur in all aspects, such as collecting data in the organisation, support in drafting documents for discussion in the company, bringing “theory” to the business. Students receive course credit for participating (between 3 and 6 ECTS, depending on the university). The course teaches students about the roles and functions (as a “junior” consultant) they can play in relation to the entrepreneur. To receive the study credits the students have to write a report in which they reflect on the activities they carried out and why.

This course is an example of the integration of activities for two target groups:

- The target groups of entrepreneurs
- The target groups of students (in business and management science or who participated in an entrepreneurship course that gave them the background to be useful for entrepreneurs)

The entrepreneur and the student are during 6 months “sparring partners”.

For more information: www.tsm.nl; www.btc-twente.nl/nl/btc/incubatorcentrum/Directievoering-37%20brochure.pdf

Box 3. The Business Development Programme (BDP)

The Business Development Programme has its roots in the mid-80s when efforts were made to create an environment to encourage the creation of an infrastructure supporting the development of a knowledge-intensive business sector within Linköping. More precisely, there was an increased interest by the university in dealing with external issues, particularly the stimulation of knowledge-intensive business within the region. In addition, researchers within the Department of Management and Economics were expressing considerable interest in business development and entrepreneurial issues, and were actively engaging with new knowledge-intensive companies. To that, Linköping experienced growth in the number of technology-based firms emerging from the university sector, which then demanded support services to help them develop and grow. Finally, the close collaboration between a newly established networking organisation, network of small and medium-sized companies (SMIL) and Linköping University created an opportunity to establish the programme and more importantly, access to potential client businesses whose founders helped to shape the first programme.

Since 1986, 490 individuals from 201 companies have participated in 25 BDPs. The environment that gave birth to the BDP has encouraged the creation of an infrastructure that promotes (i) development of a knowledge-intensive business sector, and (ii) interaction between academia and business. The seeds of this undertaking were sown in the early 1980s, when Linköping University began to interact more closely with the surrounding community. Academics had begun to search for opportunities to commercialise their knowledge – one of these was through spin-offs, new company formation. At this time, collaboration between entrepreneurs in technology-based firms and academics at Linköping University triggered the formation of SMIL (the Foundation for Business Development). SMIL's mandate was to support newly established companies in knowledge-based sectors; most of the companies in SMIL's network were spin-offs from Linköping University, but SMIL also invited spin-offs from high-technology companies and organizations in the region such as Saab, Ericsson, and the Swedish Defence Research Institute to join its network.

Initially, SMIL activities targeted network development through breakfast meetings and seminars where lecturers, often from the university's management department, were invited to speak on subjects of current interest to the founders of young firms. To foster continuity – strong relations and commitment – between the entrepreneurs, SMIL membership was required of the firms wishing to participate in the various activities on offer. Another stipulation was that only two types of organisations could become members: small technology-based firms and entrepreneurship support organisations that could contribute to the activities of the foundation. Thus, SMIL's core focus has always been to create activities that promote co-operation between academia and industry and thereby develop knowledge-intensive sectors in the Norrköping-Linköping region. The synergies resulting from these activities ensured identification of real needs among SMIL's network members. These needs could then be defined and transformed into actual support activities. A direct result of this interaction with local companies was the first version of BDP, developed by a group of leading entrepreneurs and university professors.

Three key factors interacted in the establishment of the BDP. The first was growing interest on the part of the university to deal with external issues, in particular, stimulation of knowledge-intensive business. For example, the university set up an industrial liaison office under the auspices of a newly created office of external relations; the task of the liaison office was to promote interaction between academia and industry. Researchers in the Department of Management and Economics had also become increasingly interested in business development and entrepreneurial issues and were becoming actively involved with new knowledge-intensive companies.

The second factor was the growing number of technology-based firms emerging from the university sector; these, in turn, demanded support services to help them develop and grow. The third factor was the close collaboration between the newly established networking organisation SMIL and Linköping University, which created an opportunity to establish the BDP. More importantly, the collaboration provided access to potential client businesses, whose founders helped realise the first BDP.

This first programme was the outcome of a chain of discussions with leading entrepreneurs in the SMIL network. The discussions led to the formulation of six cornerstones on which the BDP would be organised and which, over time, became responsible for the eventual success of the programme:

- The target group should be knowledge-intensive firms that have left the start-up stage and are developing into sustainable and growing businesses.
- The content delivered during the programme should be practically orientated and based on the actual business development needs of the participating entrepreneurs and firms.

- The programme should be led by a senior entrepreneur who has a broad business experience and the necessary competence to advise on a range of different strategic and operational issues.
- The execution of the programme should be built on group dynamics where the experience and competence of the participants are a crucial asset in achieving successful outcomes.
- In order to generate commitment, the programme should be funded predominantly by participants' fees, although they should not be too high so as to exclude younger businesses (today the fee 3 000 EUR plus lodging, food and travel costs).
- The co-ordination of the programme should be undertaken by Linköping University, which was seen to have the best administrative capacity for such a role. At the same time, it was important to show that policymakers saw BDP as an effective collaborative programme between SMIL and Linköping University.

During start-up of the programme in 1986, the most time-consuming task was probably the selection of a programme director. The programme's success or failure would in many ways rest on finding the right person for this job, and the first programme director was a person with considerable national and international experience in starting and managing businesses. This recruitment proved to be exceptionally successful.

Another task was to secure funding. Whilst the major part of programme funding was through participants' fees, the programme also received some financial support from the Swedish Government's funds for the education and training of entrepreneurs at established firms. Subsequent BDPs have also received government subsidies, but the principle that the participants should largely fund the programme remains intact.

Workshop format and size was yet another decision to be made. The first BDP took place after a detailed analysis of SMIL member needs; 20 firms participated in five 1-day workshops, which combined plenary sessions with group work. Feedback from the first programme was generally very positive. It became clear, however, that a group size of 20 companies was too large to allow a detailed analysis of each particular firm's problems in the allotted time. So the programme coordinators decided to reduce the maximum number of participating firms to 9. This would ensure that more resources could be devoted to network building among the companies and programme managers.

The BDP recruits exclusively within the SMIL network, thus guaranteeing the programme's commitment to its objectives and credibility. In a way, recruitment within SMIL gives the programme an authenticity it might not otherwise have and ensures that it focuses on the particular needs of knowledge-intensive businesses, which differ from the needs of small firms in general. Programme fees are approximately SEK 35 000 (4 000 EUR) per company, which does not include travel or subsistence. The Swedish Government subsidizes each company by contributing 40 per cent of the programme fee, but participants still bear more than half of the total cost. And as discussed, to ensure effective learning, not more than nine firms participate in each programme, but each firm can send up to three representatives. Feedback from early programmes revealed that when firms send at least two persons, learning is accelerated and outcomes are more quickly implemented on return to the firm.

The programme comprises three workshops over a period of 12 months. The first two workshops last for two days each and normally occur within 5 months of each other. The final workshop is a one-day session toward the end of the 12-month process. In the intervals between the workshops, workshop members carry out assigned tasks. Members also have informal meetings in the absence of the programme directors.

The first workshop focuses on firm presentations and getting to know the workshop members. To ensure continuity and development, programme directors divide the firms into three groups that will work together throughout the programme. The process of grouping the firms is important and must take account of factors such as personal chemistry between the participants, types of problems that the firms hope to solve during the programme, and experience levels of the participants. Thus, in an optimal group (i) participating firms are facing similar problems, (ii) group members complement each other in experience and expertise, and (iii) participants are able to collaborate on a range of issues.

The programme's working method rests squarely on flexibility and an open style of learning. Over the years, the BDP directors have become convinced that these two attributes have been key to the programme's success. For instance, in some cases, workshop and plenary session content is able to immediately reflect aspects of the various issues brought to the programme by the participating members. But on the whole, programme content tends to revolve around the problems common to the young or established, knowledge-intensive SMIL member:

ownership and growth strategies, financing, strategic alliances, and motivation and reward systems.

Interviews with the participating companies that have participated in the BDP over the years have identified eight key success factors.

1. *The right director (a committed programme director).* Feedback from participating firms attributes the central reason for the programme's success to the programme supervisor, an entrepreneur. Not only did the supervisor conduct the meetings with considerable wisdom and expertise, he also shared his life experience as an entrepreneur and in how to deal with various company cultures; this was of especially great benefit to the participants who had had little contact with other businesses.
2. *Openness in communicating problems and learning.* Other feedback considered openness to be one of the most important parts of the programme; in the eyes of the members, openness made it easier to learn, especially concerning approach and method of solving challenges in various company settings.
3. *Willingness to share.* At the first BDP, no programme member had had any experience in sharing ideas with other businesses. But as members' business experience matured and former participants returned to the programme, they were able to share in a new way with the current programme members; this characteristic became embedded in the nature of the programme and symbolises the collaborative nature of interaction between member businesses.
4. *Positive interaction with potential competitors.* Because programme member firms were spin-offs from knowledge-intensive milieu, such as a university or incubator, many found themselves adjusting to a new life among potential competitors. Feedback revealed that although firms may do business in the same sector, all gain by keeping the channels of communication open and, in some cases, by working together to solve common problems.
5. *Tolerance during discussions of problems.* The learning style promoted in the programme required companies to work through critical management issues and take advantage not only of available coaching but – more importantly – of the opportunity to meet other company owners facing similar challenges. All ideas suggested by participants were thoroughly analysed to design the best solution to a particular problem.
6. *Informal, flexible programme structure.* Until the programme, most participants had only experienced traditional classroom-style training. The objectives of the BDP required that teaching diverged from this instructional pattern. Content needed to be adjusted in real-time, based on the outcomes of the group workshops. The purpose of the plenary sessions was to communicate workshop outcomes to the entire group and focus discussion on the issues of current interest that had arisen. In these circumstances, a fixed-toolbox approach would be inappropriate.
7. *Needs-oriented teaching and learning.* Programme participants were finding themselves in transition from a theoretical, knowledge-oriented setting to one where they were expected to produce real-world applications for their knowledge. So although Linköping University co-sponsored the BDP, problems related to practical issues of business ownership garnered high interest. Questions such as "How does a client think?" and "What must you consider to close a good business deal?" were typical. Other areas of critical interest included optimal structure of a board of directors, salary systems, outsourcing activities, and strengthening of financial competence.
8. *Sustainable learning after programme completion.* One important benefit of having participated in the programme is the continued learning that occurs by individuals and companies. Such sustained learning includes higher self-confidence and self-evaluation; an extended, committed network of persons that the company can consult in the future (often through spontaneous, informal meetings); and new tools that can be applied in the organisation's continued development.

For more information, see www.iei.liu.se/externt/cie/development?l=en or contact Professor Magnus Klofstein at magnus.klofsten@liu.se.

Box 4. Minor Entrepreneurship (VU University Amsterdam)

The Department of Organization Sciences at the VU University Amsterdam has offered since 2008 an academic Minor in Entrepreneurship. This Minor is open to all students of the VU University, but also students of other (national and international) universities can participate. The Minor consists of 5 related courses of each 6 ECTS (see Figure 1).

Figure 1. The structure and courses of the Minor Entrepreneurship



The Minor is delivered in the first semester of the year (September till the end of January) and the semester is divided into three periods:

- Period 1: September – October: Introduction to Entrepreneurship and Entrepreneurship Industry are programmed
- Period 2: November – December: Entrepreneurial Regions and Entrepreneurship and Networks are programmed
- Period 3: January - Entrepreneuring in Amsterdam is programmed

The table below gives an overview of the objectives and content of the individual courses:

Course	Objective	Content
Introduction	After completing the course students will: <ul style="list-style-type: none"> - Be familiar with the key concepts of the domain of entrepreneurship research. - Have developed knowledge and insight into the core processes of entrepreneurship as the pursuit of opportunities. - Have developed an understanding of the function and position of entrepreneurs and entrepreneurship in society. - Have developed an understanding of different theoretical perspectives of entrepreneurship as a field of research. 	This course rests on the theoretical foundation for the Minor programme. Students are introduced to the basic concepts of entrepreneurship (opportunities, entrepreneurial process, role of the entrepreneur in the entrepreneurial process) and different theoretical visions (e.g. Schumpeter, Kirzner, Hayek, Zahra, Venkateraman, Shane).
Entrepreneurship Industry	During this course students will be challenged to think about the relationship between the topic of their “Major” (e.g. IT, Medicine, Law, Business Administration) and the domain of	The focus in the course is on topics of entrepreneurship and innovation that professionals encounter in their day-to-day contacts with entrepreneurs and entrepreneurship (business of science,

	entrepreneurship and develop an understanding of how individuals trained in their disciplinary field can contribute to the development of a better entrepreneurial climate in a specific region or sector.	commercialisation, (open) innnovation, intrapreneurship, policy issues).
Entrepreneurship and Networks	After participating in this course students: - Have developed knowledge and insight on the role and use of social networks for entrepreneurs throughout the entrepreneurial process. - Have knowledge of, and are familiar with key concepts of social network theory. - Are able to recognise relevant network relations for given entrepreneurial roles and tasks. - Are able to conduct a small network analysis for an entrepreneur and provide basic advice to the entrepreneur on the basis of their insight into network theory.	The focus in this course is on the role and dynamics of social networks in the entrepreneurial process. The relevant theories are discussed (strong ties/weak times, embeddedness, generation legitimacy) and their effect on the recognition of opportunities, the building of a resource base and the generation of legitimacy for novice and experienced entrepreneurs. The concept of social capital is discussed in terms of both positive and negative effects for the entrepreneur. Using such knowledge students are challenged to conduct an ego-network analysis for an entrepreneur.
Enterprising Regions	After following the course students are/have: 1. Familiar with different scientific theories and approaches of entrepreneurship from an embeddedness perspective. 2. Developed different theoretical perspectives on the principle of embeddedness, regional development and globalisation within the process of entrepreneurship. 3. Capable in scientifically discussing and critically analysing the concepts, both their interconnectedness and differences.	Entrepreneurship is not an isolated process instigated and executed by individuals but occurs between social actors within heterogenic communities and the social context. This relation is often described as the 'embeddedness' perspective. The concept of embeddedness, wherein economical systems are considered to be embedded in social relationships, is the theoretical perspective through which we study and explore two empirical areas under discussion within the field of entrepreneurship: a) regional development, and b) globalisation. This course focuses on how the societal, cultural, institutional and geographical embeddedness influences the processes of individual entrepreneurs, entrepreneurial communities, regional clusters and even national systems. In this course students develop specific theoretical as well as empirical knowledge about the socio-cultural and structural embeddedness of entrepreneurs and their regions.
Entrepreneuring in Amsterdam	The aim of the course Entrepreneuring in Amsterdam is to integrate knowledge and insights accumulated in the preceding courses and apply these to the study of a local entrepreneurial initiative that is initiated or supported by local policy-makers and various players in the civil society.	The focus in this course is on entrepreneuring in Amsterdam. Students will be acquainted with entrepreneurship policy issues in the context of a large city. The key question addressed in this course is how policy-makers and key players in the civil society stimulate specific forms of entrepreneurship such as urban entrepreneurship, social entrepreneurship and green / environmental entrepreneurship in order to address contemporary social challenges
The Minor is unique for a number of reasons:		

- The focus is on the development of a better entrepreneurial climate and how students can contribute to this in a diversity of functions, not only as an entrepreneur, but also as a professional who functions as a policy-maker, consultant, scientist seen from their study background (law, human movement science, public policy, social sciences, communication sciences, medical sciences, etc.)
- Focus on diversity: future professionals encounter entrepreneurship in a variety of settings and for that reason there is no focus on a sector or type of entrepreneurship.
- An academic focus rather than a practical focus (“writing a business plan”, or starting a company).

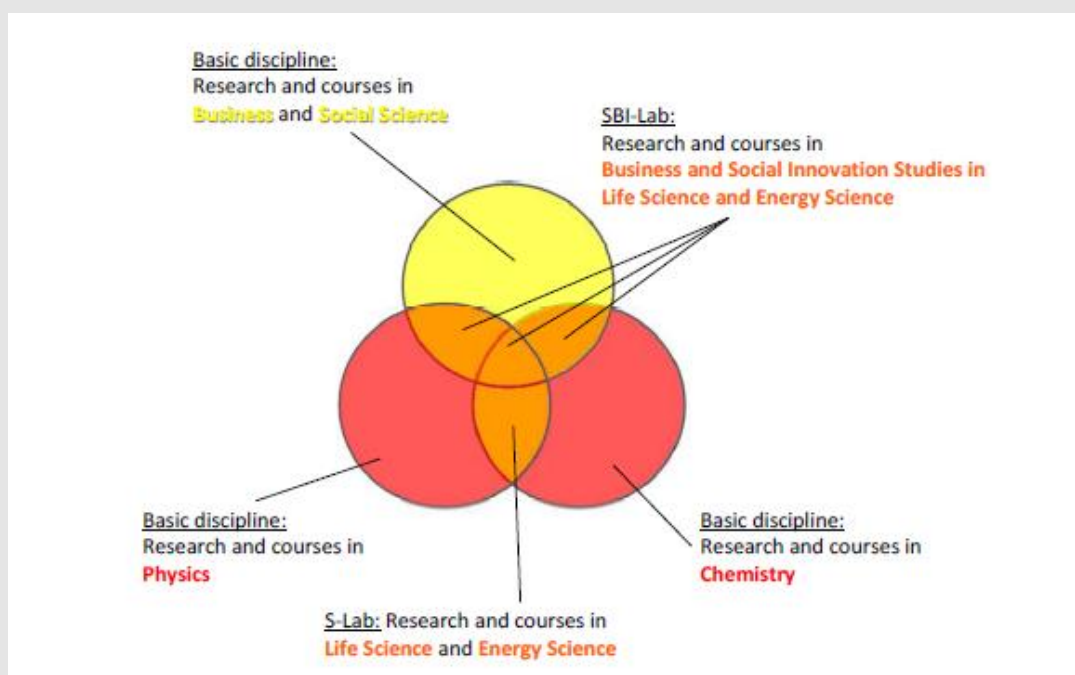
The course is an example of:

- A “different” target group, meaning the target group is not only students who want to start a business, but moreover students who want to be an entrepreneurial professional.
- Academic approach to the phenomenon of entrepreneurship.

For more information: www.fsw.vu.nl/nl/opleidingen/minoren/entrepreneurship/index.asp

Box 5. Interdisciplinary Study Science, Business & Innovation (SBI)

Science, Business & Innovation (SBI) is a young study programme at the VU University Amsterdam. Since 2010 the Bachelor programme has been accredited by the Dutch Accreditation Board. In the Bachelor as well as in the Master programme, which is multidisciplinary, innovation and entrepreneurship are the connecting themes. The SBI study is coordinated by the Department of Exact Sciences (FEW) in co-operation with the Faculty of Social Sciences (FSW) and the Faculty of Economic and Business Sciences (FEWEB). A choice has been made to focus on Life Sciences and Energy Sciences and the objective is that on the basis of knowledge and insights in the natural sciences and theories and models of the social and business sciences are combined in order to “valorise” research both in small and large companies as well as in new enterprises. The Figure below outlines the basic structure of the educational programme (Bachelor as well as the Master programme).



SBI Bachelor students attend chemistry and physics courses and life science and energy science laboratories and projects (S-Lab) to gain sufficient background and learn the language of science specialists. They also learn to recognise and interpret new developments and inventions in life science and energy science in a business context. Concurrently, they will advance their knowledge in the social and business sciences to strengthen their knowledge in relation to leadership, entrepreneurship, communication and decision-making, R&D consortia and the analysis of institutional problems. In the SBI-Lab these disciplines come together, enabling the SBI Bachelor students to study business innovation processes and the organisation of innovation processes related to state-of-the-art inventions in life science and energy science. The (Bachelor and Master) programme is build around the following key elements:

R&D for innovation is increasingly becoming an activity in which science and business co-operate from the very start. This creates a need for academic professionals whose primary discipline is to integrate science and business. SBI's choice to integrate the exact sciences with business and social science at a Bachelor's level rather than Master's level answers this demand. The SBI programme aims to educate a new type of professional who is able to act as a driving force and bridging facilitator of science-driven innovation processes within and between organisations.

The SBI programme combines a thorough understanding of the fundamentals of physics and chemistry (with a focus on energy science and life science) with insights into innovative trajectories from a business and organisational perspective. The integrative character of the programme is specifically put into practice in a series of active learning courses where the Science (S), Business (B) and Innovation (I) knowledge of the students is integrated and expanded. These courses are given in small groups in the first and second years of the programme. In the third year, each SBI student puts all of their knowledge and skills into practice in a large (24

ECTS) Bachelor's project.

The SBI programme is an example of how entrepreneurship and innovation are substantially integrated in an educational programme in its own right.

More information: <http://www.vu.nl/nl/opleidingen/bacheloropleidingen/opleidingenoverzicht/q-z/science-business-innovation/index.asp>

Box 6. Idea Mining

Idea Mining is a product that University of Münster (Westphälische Wilhelms Universität) has been offering since 2003. Idea Mining stands for creativity workshops (or think tanks) which are requested by a company or organisation and performed on their premises. During these workshops interdisciplinary teams develop ideas on current corporate or organisational problems or issues. The AFO Innovation Office at the University of Münster does the acquisition of companies and organisations and recruits students for participation. The project brings together an interdisciplinary group (sometimes even including international participants) and top professionals from academic and business environments. It's a one-day session of fruitful discussion, brainstorming and generating new ideas with the involvement of professional facilitators. The participants (the students) will get an opportunity to discuss a challenging (and real life) topic in a highly creative atmosphere with professionals. The teams that work on the topics are made up of company employees, academics and students. The workshops are facilitated professionally and usually last for 5-6 hours. Special about Idea Mining is that synergy effects emerge from mutual creative stimulation within interdisciplinary teams. Through Idea Mining companies are able to access academic know-how and forge links with students (who in the future can become their junior managers).

Idea mining is an example of an activity in the domain of "creating awareness" that can be used to get students really interested in entrepreneurship and innovation.

More information:

http://www.uni-muenster.de/imperia/md/content/wwu/afo/afoab2009/ideen-mining/downloads/11.01.19_afo_ideen-mining-brosch_re_k7_web.pdf

Box 7. Incentives for Entrepreneurial Activities

Many universities around the world implicitly or explicitly underwrite the so-called “professors’ privilege”, which means that academic staff is entitled to undertake (entrepreneurial) activities of their own for a maximum of 1 day a week when this is not in conflict with the academic duties. Universities developed rules and regulations for this to oversee and control this process. A second generally accepted incentive for the involvement in an (academic) spin-off is a percentage in the equity of the new company. More “innovative” ways to stimulate and reward entrepreneurial activities are shown in the examples of the University of Ulster (UK/NI) and of the Fachhochschule Münster (Germany).

Example 1: Promotion at the University of Ulster

There are three ways by which an academic member of staff can seek promotion within the University of Ulster and he or she must demonstrate significant progress in at least two at any time. The first two mentioned concern the “traditional” academic ones:

- Prowess in lecturing/teaching, demonstrated through peer-review and student feed-back amongst other measures;
- Significant performance in research, demonstrated by publications in peer-reviewed journals and
- Engagement in Academic Enterprise.

With respect to this latter one an academic staff member would have to show how he or she was actively involved in promoting the agenda for the entrepreneurship perhaps through working to leverage value from academic research, through to encouraging and supporting students and staff in their efforts to launch a new venture or grow an existing business venture through to promoting the agenda for enterprise outside the Business faculty such as I was involved with. Acquiring funding for any of these activities would of course be an important measure of success in this activity as would the development of key networks, nationally and internationally.

Example 2: Space Allocation scheme (Raumhandelsmodell) of the FH Münster

The resource "space" plays a vital role in every university. A so-called "space allocation scheme" (Raumhandelsmodell) has been developed at the FH Münster as an incentive system for entrepreneurial activities in the area of research and education. The (research) group that manages to procure funds for entrepreneurial activities receives an allocation from central university funds of 6% of the acquired funds for technical faculty and 12% for non-technical faculty. Extra space of 23m² is allocated for every €35,000 in acquired third-party funds (including funds acquired from the federal state) in the context of the so-called room trading model (Raumhandelsmodell) to house personnel for the project. In addition, the University also offers an incentive of office and laboratory space through internal of Research and Development (R&D) competitions which aims to strengthen its Research and Development and Technology Transfer capacities. When calculating the faculties' budgets, the research-related component contributed with 7% on average in 2000, whereas in 2005 it already amounted to 25%.

For more information, please see en.fh-muenster.de/forschung/forschungsstrategie/forschungsstrategie.php or contact Professor Peter van der Sijde at p.c.vander.sijde@vu.nl.

ASSESSMENT FRAMEWORK

The OECD LEED Programme has developed from previous international case study work on university entrepreneurship support and the theoretical debate of the role of universities in generating entrepreneurial motivations, intentions, and competences below presented Criteria List of good practice.

The Criteria List served as assessment framework for the here presented findings and recommendations.

At the same time the Criteria List is a 'tool', which allows universities to self-assess and re-orient their strategy in supporting entrepreneurship, their current pool of financial and human resources, the existing support infrastructure, current practices in, and evaluation of, entrepreneurship education and start-up support.

Strategy and top-management support

A university needs a clear vision and strategy that responds to what is entrepreneurship, why does the university promote entrepreneurship, who are target groups, what does the support consists of, how it is delivered and by whom. Clear incentives and rewards are needed for professors, researchers and students to engage. The internal and external communication of a university with regard to entrepreneurship matters; information needs to be easily accessible.

Criteria

- There is a clear vision and strategy behind the university provided entrepreneurship support.
- Objectives of entrepreneurship education and start-up support include generating entrepreneurial attitudes, behaviour and competences, as well as enhancing growth entrepreneurship (both high-tech and low-tech).
- There are clear incentives and rewards for entrepreneurship educators, professors and researchers, who actively support graduate entrepreneurship (mentoring, sharing of research results, etc.).
- Recruitment and career development of academic staff takes into account entrepreneurial attitudes, behaviour, prior experience as well as current entrepreneurship support activities.

Financial resources

Public kick-off funding for entrepreneurship support infrastructure is common practice today. Yet, it is the balance between a minimum long-term financing for staff costs and overheads and the openness to private sector involvement in the financing of Entrepreneurship Chairs and incubation facilities which proves to be successful in an international comparison.

Criteria

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

Human resources

Entrepreneurship support in universities, in particular entrepreneurship education, is demanding reinforcement and development of existing human resources and employing new staff. Working with entrepreneurs, chief executives, bankers, venture capitalists and business angels is important to link theory with practice.

Criteria

- Regular, relevant training for staff involved in entrepreneurship education is in place.
- Regular, relevant for staff involved in start-up support is in place.

Support infrastructure

Moving towards greater cross-faculty collaboration in entrepreneurship support and greater connection between entrepreneurship education and start-up support provision will require a co-ordination unit. Universities will need to find their place in existing start-up and entrepreneurship support systems. Networking and incentives for clear referral systems are needed to increase the effectiveness of start-up support and reduce duplication, confusion and waste of resources.

Criteria

- An entrepreneurship dedicated structure within the university (chair, department, support centre) is in place, which closely collaborates, co-ordinates and integrates faculty-internal entrepreneurship support and ensures viable cross-faculty collaboration.
- Facilities for business incubation either exist on the campus or assistance is offered to gain access to external facilities.
- There is close co-operation and referral between university-internal and external business start-up and entrepreneurship support organisations; roles are clearly defined.

Entrepreneurship education

Ideally all students should have access to a wide range of entrepreneurial learning opportunities inside and outside their courses of study. Increasing take-up rates will require both expanding and tailoring the offer in entrepreneurship education. The goal is to generate entrepreneurial intentions and to develop competences for entrepreneurship. Progressively the offer in entrepreneurship education should be expanded and tailored to the different interests and needs of participants. Engaging in exchange of good practices in creative teaching methods at wider regional, local and international levels will facilitate improvement and innovation.

Criteria

- Entrepreneurship education is progressively integrated into curricula and the use of entrepreneurial pedagogies is advocated across faculties.
- The entrepreneurship education offer is widely communicated, and measures are undertaken to increase the rate and capacity of take-up.
- A suite of courses exists, which uses creative teaching methods and is tailored to the needs of undergraduate, graduate and post-graduate students.
- The suite of courses has a differentiated offer that covers the pre-start-up phase, the start-up phase and the growth phase. For certain courses active recruitment is practiced.
- Out-reach to Alumni, business support organisations and firms is a key component of entrepreneurship education.
- Results of entrepreneurship research are integrated into entrepreneurship education.

Start-up support

Start-up support is providing a helping hand in business start-up without taking away the 'do it on your own'. It is all about making, entrepreneurship support systems accessible and attractive for future entrepreneurs, and about rectifying market and system failures in financing and premises. A key success factor lies in private sector collaboration. Universities can create a protected environment for nascent entrepreneurship. This can be an important stimulus for students and researchers to make a first step towards the creation of a venture. Yet, in order to avoid 'over protection', early exposure to market conditions is advisable.

Criteria

- Entrepreneurship education activities and start-up support are closely integrated.
- Team building is actively facilitated by university staff.
- Access to public and private financing is facilitated through networking and dedicated events.
- Mentoring by professors and entrepreneurs is facilitated.
- University-internal business start-up support is closely integrated into external business support partnerships and networks, and maintains close relationships with firms and Alumni.

Evaluation

Assisting the establishment of new firms is a key objective of university entrepreneurship support, but not its only one. For entrepreneurship education creating entrepreneurial mindsets that drive, for example, modernisation and innovation in existing firms, is of equal importance, yet success is much more difficult to measure. Hence, the co-existence of tangible outputs (e.g., number of assisted new ventures) and intangible outcomes, such as the spread of entrepreneurial culture and the creation of entrepreneurial mindsets, renders assessing the impact of university entrepreneurship support a challenge that requires tailored approaches and systematic, long-term evaluation efforts.

Criteria

- Regular stock-taking and performance checking of entrepreneurship education activities is undertaken.
- Regular stock-taking and performance checking of start-up support is undertaken.
- There is systematic evaluation of entrepreneurship education activities in terms of their impact on achievement of prior defined objectives.
- There is systematic evaluation of start-up support provision.

Source: OECD (2010), "Universities, Innovation and Entrepreneurship: Criteria and Examples of Good Practice", OECD Publishing. <http://dx.doi.org/10.1787/5km7rq0pg00q-en>, adapted.

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