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Promoting Successful
Graduate Entrepreneurship
at the University of Applied
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Germany

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PROMOTING SUCCESSFUL GRADUATE ENTREPRENEURSHIP

AT THE UNIVERSITY OF APPLIED SCIENCES SCHMALKALDEN, GERMANY

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

The following questions have been investigated:

- 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?

The 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 the University of Applied Sciences Schmalkalden on 29-30 June 2011, and comparisons with international experiences and good practices in university entrepreneurship support. The University of Applied Sciences Schmalkalden 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 Ministry of Economy of Thuringia and the Ministry of Education and Research of Thuringia have been the main partner institutions at Land level.

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STUDY ISSUES AND FINDINGS

Rationale for university entrepreneurship support

“We pour considerable amounts of money into our educational systems, but we haven’t been able to create schools and institutions of higher education that develop people’s innate capacity to sense and shape their future, which I view as the single most important capability for this century’s knowledge and co-creation economy”. (Scharmer, 2007, p. 3)¹

Many different inputs are required for successful entrepreneurship, one of the most important being entrepreneurship skills. Motivated people need the right skills to identify entrepreneurial opportunities and to turn their entrepreneurial projects into successful ventures. Successful entrepreneurs follow a learning journey, which starts in education and continues through continuation are learning-by-doing processes and both formal and informal learning inside and outside the firm.

Higher education institutions provide unique environments for nascent entrepreneurship. Tailored practices have emerged in educating future entrepreneurs and in helping them to take their first steps in starting-up and growing a business (OECD 2010)². To best support entrepreneurship, universities themselves need to be entrepreneurial. Promoting entrepreneurship is very likely to have an impact on what most universities today perceive as their ‘first’, ‘second’ and ‘third’ missions, and what the best linkages are between education, research, and promoting social and economic development in terms of internal governance, positioning in local, national and global levels and strategic partnerships.

University entrepreneurship support³, considered on its own, has its limits. It prepares students for future entrepreneurial careers and promotes the commercialisation of research results. However, success depends upon the close co-operation and integration of the university internal support with the external entrepreneurship support system.

Assisting the establishment of new firms is a key objective of university entrepreneurship support, but not its only one. 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.

Entrepreneurship education can play at least three legitimate roles in the development of an entrepreneurial society. First, it can present students with entrepreneurship as a possible career choice in addition to acting as a general advocate for the mindset and type of creativity employed in entrepreneurial endeavours. Second, it can assist students in developing the technical and business skill-set necessary to have a successful entrepreneurial career. Third, professional educators can assume the responsibility of advancing the body of knowledge associated with the entrepreneurial

¹ Scharmer, C.O. (2007): “Theory U. Leading from the Future as it Emerges”, The Society for Organizational Learning.

² OECD (2010), “Universities, Innovation and Entrepreneurship: Criteria and Examples of Good Practice”, OECD Publishing. <http://dx.doi.org/10.1787/5km7rq0pq00q-en>

³ In this report, the term “university” is used for both universities and universities of applied sciences.

phenomenon. Their findings should not only be disseminated to students but also to policy-makers and the public at large (Redford, 2006).⁴

When launching a new venture, the entrepreneur can either have a (somewhat) precise venture idea, or, instead, a set of competences, skills, resources, and contacts to dwell on. Moving from an either-or situation to a greater coincidence of ideas and competences is what entrepreneurship education programmes aim to achieve.

Education and training contribute to the development of the entrepreneur's knowledge of what Sarasvathy (2001) calls the "three categories of means". Ideally, entrepreneurs, firstly, know who they are, what they know, and whom they know. They are, secondly, aware of their own traits, tastes, and abilities, and thirdly they have realised the knowledge corridors they are in and the social networks they are a part of. For Sarasvathy the entrepreneur that possesses all three knowledge-means is an effectuation entrepreneur.⁵ She or he is less likely to use traditional types of market research (such as carefully designed surveys), but reverts to "seat-of-the-pants marketing" and selling alliances. Instead of on long-term planning and net-present-value analyses, preference is on short term planning, and hierarchical structures based on power-related procedures are replaced by strong participatory cultures nurturing the entrepreneur's relational capital. Finally, despite the greater likelihood of failure, effectuation entrepreneurs are more likely to effectively manage failures, to re-start, and to create more successful firms in the long run. Hence, the idea is to take advantage of three core elements rooted in the individual rather than the product or the market:

- Who I am?
- What I know?
- Who I know?

There is an increasing awareness amongst universities and local entrepreneurship support providers to put more emphasis on action plans rather than business plans. The importance of drive and energy based on proactive conduct is more valued than academic and written intentions. What you *do* rather than what you *would like* to do is a big difference. Although market analysis and other relevant tasks and preparations surely could be proved valid and very important, the emphasis should be on the constant drive and development of the venture. Entrepreneurs are often not in it for the writing of long reports – they want development and results. Thus the looking at the start-up as an organic, ever-changing entity should be supported. The following quote illustrates this:

"The major difficulty that may arise when functional inputs are dominant – as they seem to be in many programmes – is that they may deny the capacity for development of the kind of holistic management that is central to the entrepreneur. Entrepreneurial managers are managers of the 'total' business and thus able constantly to 'feel' it. Entrepreneurs seek knowledge on a 'need to know', 'know how' and 'know who' basis and, in the experience of the author working with many groups of entrepreneurs, will enthusiastically embrace new knowledge when it brings forward future recognisable contextual experience to them and

⁴ Redford, D. T. (2006). Entrepreneurship Education in Portugal: 2004/2005 National survey. *Comportamento Organizacional e Gestão, Special Issue: "New Challenges in Entrepreneurship"*, 12(1), 19 - 41.

⁵ The website www.effectuation.org provides concrete ideas, article and papers, best practices as well as relevant perspectives for different stakeholders such as researchers, entrepreneurs, and investors.

helps them to conceptualise and give broader meaning to their existing problems and opportunities.” (Gibb, 2005)⁶

Often business plans are invalid after just a short amount of time and/or actions. Instead a systematic, holistic “are-we-on-the-right-track” description is needed. Investors and other resources wanted for developing the venture are often much more interested in progress than prophecies. This way of looking at start-ups therefore also needs to be communicated to those involved in financing, mainly banks. In contrast to banks, (private) business angels and early seed venture capitalists are advocating this as they see their investment in a more reliable view than based on presumptions. A belief in the team and the ability to follow the day-to-day actions and developments of the business gives better reassurance for the investment.

The emphasis in university entrepreneurship support, to date, has mainly been on entrepreneurship education, but the concept of the university as main reference point in the entrepreneurial process chain awareness creation→competence building→action is gaining more and more ground. Students participating in entrepreneurship education are encouraged to undertake entrepreneurial activities whilst they are studying. Entrepreneurship education can not stand alone if universities want to create the right environment for nascent entrepreneurs and dedicated spaces, such as “hatcheries” or incubators. This implies, however, close interaction and co-operation between higher education institutions and private and public support structures outside university. Successful local entrepreneurship support systems rely on easy access, through clear referral, and tailored support.

Facilitating the access to financing, premises and networks and enhancing teambuilding, mentoring and access to research results are key pillars of start-up support provided by universities. This requires, alumni have to be engaged as mentors and secure access to established companies. Local businesses have to co-operate more with universities in regards of guest lecturing, project work, access to real-life cases, interaction with student start-ups, developing of new solutions for existing challenges etc. Banks, business angels and VCs should frequently be present at campus and close contacts to other higher education institutions should be facilitated with regard to creating platforms for teambuilding and networks are essential.

Finally, entrepreneurship is a concept that can benefit not only those that wish to create new organisations but also those that wish to work in existing organisations. Organisational renewal that incorporates innovation, venturing and risk-taking relates to the concept of intrapreneurship. The pursuit of intrapreneurship in established organisations arises from the need to avoid stagnation and decline by helping companies deal with change, develop innovation, and improve their adaptive capacity in servicing the marketplace. Developing mindsets and skill sets of intrapreneurship with students can broaden their focus to incorporate leadership, innovation, changing the culture of organisations and furthering customer relationship development.

Key achievements

A strong brand in the region. The university is seen as an important stakeholder in collaboration with the local and regional business life and industry. The skills, knowledge, and research present and developed at the university are foundations for the continuing growth in the region. The fact that many students are being offered job even before graduation is a sign of strong technical skills and desired knowledge. This can be used as a lever for more enterprising behaviour related to both entrepreneurship and intrapreneurship.

⁶ Gibb, A. (2005): “Towards the Entrepreneurial University”, Policy Paper # 3, National Council for Graduate Entrepreneurship.

Dedicated and locally anchored students. The size of FH Schmalkalden, the size of the city itself, and the – after all – rather limited possibilities to travel easily to other cities should make it possible for students to engage with the local community in an entrepreneurial manner. The students often stay on campus, which gives room for a rich campus life and prepares the ground for promoting activities to promote entrepreneurial intentions amongst students. The local anchoring of FH Schmalkalden also makes way for exploring and exploiting new entrepreneurial opportunities to the benefit of the region, for instance within tourism and the experience economy.

Size matters. Even though size sometimes is an important factor in terms of the critical mass notion, the size of FH Schmalkalden offers possibilities to create a local initiative that is able to move faster and more progressively than bigger institutions. It calls for cross-disciplinary action that also is deeply rooted in the university's tradition of working with practical problems together with the business life and industry.

A sublime concentration of support initiatives. Efforts to promote entrepreneurship Schmalkalden are immense, and FH Schmalkalden is in an obvious position to take good advantage of this. Start-up support is prioritised on many levels (locally, regionally, and nationally) and can be accessed easily through a wide range of services and organisations providing them.

Key challenges

The awareness of entrepreneurship. Promoting entrepreneurial intentions amongst students and developing competences for entrepreneurship is not a priority for FH Schmalkalden's top-management. Graduate entrepreneurship is understood as a minor employment opportunity compared to dependent employment. Hence, the strategic understanding of entrepreneurship as profession dominated by a low proactive demand from student side which, in turn, does not request strategic interventions by the top-management. A lack of new (graduate) start-ups will in the long run not provide the region with enough new businesses needed to stimulate modernisation and innovation in the local business base. Business succession was not mentioned as an issue for the region, but this might change in the near future.

High-tech start-ups as the only solution? The range of areas in which graduate start-ups can emerge and which forms this can take should be reconsidered. Even though FH Schmalkalden is a university of applied sciences, the range of faculties and teaching subjects opens possibilities to think more cross-disciplinary and to establish a novel perspective of entrepreneurial opportunities in the region.

Lower position of entrepreneurship education than in the past. At FH Schmalkalden it appears that entrepreneurship education had previously been more of a priority than it is currently. There exists a relatively limited offering of courses for students related to entrepreneurship and few connections between the faculties. There is clearly entrepreneurship competencies within the faculty membership that can be further strengthened through creating more strategic emphasis on entrepreneurship education. Previously courses at FH Schmalkalden had a more interdisciplinary character and students from different faculties could participate in lectures and seminars that were not in their respective Faculties. At present, FH does not offer a general or interdisciplinary entrepreneurship education programme. Non-business students who take courses in entrepreneurship may require educators to emphasize different skill-sets than the courses more commonly developed for business majors. Through the interviews it was clear that the faculty at FH Schmalkalden understands this and are in the process of adjusting their programs accordingly.

Teambuilding. Cross- and interdisciplinary teambuilding is not yet facilitated. Even though FH Schmalkalden is seen as a technical university, the range of academic fields is varied and the faculties

should be co-operating in securing an approach to entrepreneurship building on all the university's disciplines. Cross-disciplinary courses and activities has previously been a part of the curricula, but are not offered at the moment. A re-thinking of the blending of students at courses and at entrepreneurial events at the university is needed.

No institutional structure that can influence how entrepreneurship support is organised at FH Schmalkalden. Currently, there is one person in the Rectory working at 50% of Full-Time Equivalent on entrepreneurship, but there is no institutional structure, where, for example, interdisciplinary initiatives in entrepreneurship education are housed. As of yet there is no consolidated strategic plan in regard to entrepreneurship education or start-up support. There have been several initiatives but little integration between the faculty members and courses that do exist. Furthermore the university is missing an infrastructure that would promote co-operation within the organisation and with external stakeholders in entrepreneurship support.

Who is who in the zoo? Even though the region is blessed with a vast range of services and support initiatives covering many aspects of start-up support, the comprehensive view of the offering seem to be missing. The initiatives and institutions offering support do not co-operate sufficiently, and the offerings are not exposed clearly enough at the university. There exists some integration with the local network of incubators, regional and city government.

No physical space for entrepreneurship on campus. Premises for students to work on projects and start-ups are also at the moment not sufficiently present. Physical premises and facilities for entrepreneurial activities and the visibility of the efforts at FH Schmalkalden are strongly needed. Even though the existing actions are still to be further developed, an initial visualization of the efforts can cause further attention and interest among the students. The access to knowledge and information (resources, i.e. dedicated people and professors) is missing.

Low student engagement. There is no entrepreneurship club for students, nor is there a plan to create one. The development of furthering ties between external actors and the University could be beneficial in helping graduate entrepreneurs find funding and opportunities in the region. Student engagement in entrepreneurship is relatively low for the overall student population. Clear incentives and reward structures for those professors and staff members that are involved in entrepreneurship education would be helpful in re-launching entrepreneurship as an area of strategic importance.

Financing. The access to finance seems to be one area that the region puts a great deal of attention to and has many good initiatives for, but the overall picture of where to get access, what it takes, how much can one apply for, what are the long-term conditions etc. is missing. This area also has to be better coordinated to the benefit of the start-ups. The start-up grants provided by local government are an excellent initiative, yet not enough known to student and graduate entrepreneurs.

Mentoring. A network of voluntary mentors is missing. The access to mentors with experience from real-life ventures and companies is needed on a regularly basis for impartial and moral support of individuals and teams involved in start-ups. The use of professors and formal initiatives can be very helpful and rewarding, but as regarding the professors their experience of running real-life businesses is often limited and additionally the existence of the educator/student-relationship can provide complications regarding academic standards wanted by the university (the professor) and the start-up ambitions sought by the student(s).

Recommendations

Prioritising entrepreneurship in internal and external communications. A crucial way to enhance and develop the area within entrepreneurship is to make it *visible*. Internal as well as external communication has to be prioritised by the university. As an integrated part of the university's general work, access to the area must be available on the website. Here the main focus could be on the university's already existing efforts, i.e. what courses are offered, whom to contact in case of interest in the area (the university contact person), links and information about the start-up support initiatives and so on. This should be an integrated part of the university's communication in line with the information regarding the educations, research and other of the "normal" information present at the website. From here the efforts can develop into other areas and platforms, e.g. student networks, educator networks, entrepreneurship events at campus etc. The official website's information is the responsibility of the university – the underlying layers and links are to be developed more autonomous and organically. Most important is that the one-door-entry is very observable on the front-page of the website. Another simple way of creating awareness and pass on information about entrepreneurship is to scan the "market" for events, activities, seminars, workshops or the like and gather them centrally at the university's (or sub-page's) website. Often students are only exposed to creativity camps, relevant workshops etc. by "accident" (word of mouth). An enhanced effort to try to map and publish all relevant activities taking place and being offered by the whole start-up support community (universities, public, private) is a way to draw attention to the manifold possibilities there in fact are present to sustain the development of ventures. This also gives a more diverse picture of what is really happening in the region and thus engage students from backgrounds other than from business or technical studies. Teambuilding should be used as a way to develop knowledge and concrete projects.

Promoting entrepreneurial opportunity recognition. Looking at FH Schmalkalden' technical and scientific strengths, there seems to be many good possibilities as to enter into low and high tech start-ups for the graduates. But even though the tradition should build on this, there could be more options to pursue regarding more cross-disciplinary start-ups and business opportunities. The cross-fertilisation of subjects, courses, students, faculty, and external support initiatives could open up new insights for development. The city and the district would probably be more than willing to engage into a 360° study of Schmalkalden and the region as to look into what possibilities the region could benefit from regarding the focus of new start-ups. For instance a more detailed survey on the possibilities to enhance the tourism and experience economy-efforts to attract not only more inhabitants, tourist, and students, but also getting the faculty and graduates to choose Schmalkalden as their base and not commuting to Erfurt or other cities and to stay in Schmalkalden after graduation. Future enterprises and ventures are more likely to consist of multi-diverse teams that combine many subjects and backgrounds and therefore not provide an existing market with a product, but also provide and develop whole new markets that are able to take in radically innovative products and services.

Expanding entrepreneurship education activities towards all students at FH Schmalkalden. All students at FH Schmalkalden should ideally have access to a wide range of entrepreneurial learning opportunities. Making students aware of entrepreneurial opportunities in their close environment may help in them in the city and region. To secure a cross-disciplinary approach to entrepreneurship the university needs to develop more cross-faculty initiatives. Successful start-ups are often based in complementary competencies, skills, and knowledge among the participants. To develop a business, define a product/service, and entering the market calls for diverse perspectives and cultural differences. This can be achieved in multiple ways. Cross-disciplinary courses and electives is one obvious way to get this started and to encourage and stimulate the blending of the students. Furthermore the renewed status of FH Schmalkalden as an entrepreneurial university needs to be embedded at all faculties at the university. Extra-curricular activities and events taking place at FH Schmalkalden have to be open and relevant for all students regarding their academic fields or other

preferences. This is not to say that all such activities at all time should be aimed to attract all kinds of students. The range of the university's offers could profitably incorporate the local and regional support organizations as co-arrangers. This would further strengthen FH Schmalkalden as the local platform within entrepreneurship and enhance the cooperation with authorities and support organizations.

Mapping the existing local and regional initiatives. A thorough mapping of the initiatives and efforts regarding start-up support in the region can be a lever of the awareness towards innovation and entrepreneurship at the university. Such a task should be carried out by students in close collaboration with the university and the surrounding society. Besides the advantage of using such a study to create awareness at campus, the mapping should also provide the different stakeholders with concrete knowledge and recommendations of how to secure a more coherent system that allows all stakeholders to revise and explore new possibilities for action and co-operation as well as strategic partnerships. Even though many of the initiatives are not entirely aimed at graduate start-ups, but at start-ups in general, the awareness among graduates, university, and the involved organisations and/or initiatives could offer new insights of how to support and assist in the establishing of an entrepreneurial university.

Showcasing and celebrating successes. One way of creating awareness and stimulate the knowledge about entrepreneurship is to show the successes form within the region. Activities such as "Career Days" where (local) companies visit the university to tell about their company (and eventually recruit future employees) are common at many universities world-wide, but a way to stimulate entrepreneurship is to create "Start-up Days" where local and graduate start-ups tell their story and by that stimulate enterprising behaviour as well as creating networks and connections between possible future partnerships and/or co-operation. This could be arranged in a co-operation between the local authorities and organisations, the university, and graduates/alumni. It is important though that the venue is FH Schmalkalden. The familiarity with the venue and the faculty present will support the credibility and integrity of the event. The visibility of such initiatives for the students (and faculty in that matter) is extremely important when an entrepreneurial culture is to be established. Another way is to invite start-ups and alumni on a more individual basis as part of courses and classes to act as role models for the students. This should be done as part of the curriculum where the interaction with and practical approach to business and industry make sense. The close collaboration in which the students interact with companies (private or public) is an excellent way of gaining insights in what's needed to create and develop a venture. Many of the skills needed for launching a start-up are the same needed to act as an enterprising employee in an existing organisation, so the fundamental knowledge of how to take risks, generate ideas, act upon possibilities as well as securing resources for your scheme are identical. By this the focus on value creation and the individual's ability to go forward with his/her idea are not only limited to start-up skills, but also as a creator of value in other (job) situations.

Establishing more links with the wider graduate entrepreneurship support network in Thuringia. FH Schmalkalden could make better use of the Thuringian networks that support entrepreneurship. Students and researchers could use some of the business start-up services at the Friedrich Schiller University in Jena, the business start-up initiative "Neudeli" at Bauhaus University in Weimar and the "Auftakt" initiative at Technology University Ilmenau.

Engaging alumni as mentors. To secure a balanced and more unrestrained line of advice for graduate start-ups, a more voluntary basis of consultancy and mentoring can be initiated by use of FH Schmalkalden alumni. The will and urge to "give back" to university (and society) from experienced business people (but also from the public sector) is a way to create relations and secure knowledge sharing that is not biased by any organization's or governmental point of view. The existing Alumni-

Portal initiative at FH Schmalkalden should therefore also include information about the entrepreneurship support offer.

Increasing the involvement of entrepreneurs in the education offer. FH Schmalkalden would greatly benefit by further integration of stakeholders, such as alumni founders, entrepreneurship support organisations as well as funders such as business angels, venture capitalists and administrators of government-sponsored programs. Although there is already some involvement of individuals from these organizations, an effort to strengthen further ties could be made. Alumni could act as guest teachers from time to time, present real-life experience and know-how at events, and most importantly act as non-partial mentors and as providers of one of the crucial aspects within entrepreneurship support namely the “*know-who*”-facet. Often the most valuable support and advice to receive as an entrepreneur is the knowledge of whom to go to next in regards of gaining further resources for the development of the business.

INTERNATIONAL LEARNING MODELS

In the following three learning models are presented. These are policy initiatives or university-based actions that seek to promote action-oriented approaches in entrepreneurship support. The emphasis of these initiatives is on the development of a university-based support infrastructure which reflects the current set-up and capacities and enhances their continuous improvement. Such an infrastructure also allows for a fruitful partnership between university internal and external entrepreneurship support organisations and actors.

The table below gives the reader a quick overview of which of the learning models provides inspiration for action and practical hints in light of the above presented recommendations.

<i>Prioritising entrepreneurship in internal and external communications.</i>	<ul style="list-style-type: none"> • The StartupWheel
<i>Promoting entrepreneurial opportunity recognition.</i>	<ul style="list-style-type: none"> • New cross-disciplinary education at Aalborg University
<i>Expanding entrepreneurship education activities towards all students at FH Schmalkalden.</i>	<ul style="list-style-type: none"> • New cross-disciplinary education at Aalborg University
<i>Mapping the existing local and regional initiatives.</i>	<ul style="list-style-type: none"> • The StartupWheel • The “One-door-in”-approach – Copenhagen School of Entrepreneurship
<i>Showcasing and celebrating successes.</i>	<ul style="list-style-type: none"> • The StartupWheel
<i>Establishing more links with the wider graduate entrepreneurship support network in Thurignia.</i>	<ul style="list-style-type: none"> • The StartupWheel • The “One-door-in”-approach – Copenhagen School of Entrepreneurship
<i>Engaging alumni as mentors.</i>	<ul style="list-style-type: none"> • The “One-door-in”-approach – Copenhagen School of Entrepreneurship • The StartupWheel
<i>Increasing the involvement of entrepreneurs in the education offer.</i>	<ul style="list-style-type: none"> • The StartupWheel • The “One-door-in”-approach – Copenhagen School of Entrepreneurship

Box 1. The StartupWheel

A Danish developed tool to organise and cultivate the progress of the start-up is the so-called StartupWheel (<http://www.startupcompany.com/>).

The inventor David Madié has started more than 25+ successful businesses and has never written a business plan, and has had long experience of working with universities and graduate start-ups. As stated above the rationale for business plans are often that of control and security for investors rather than to be used to support the development of the venture. That is the justification of the development of this tool; a tool for decision-making in start-up and growth companies that helps entrepreneurs and advisors get focus, set agenda, and take the next step.

The StartupWheel is being used as a platform for dialogue with start-ups as well as a concrete tool for the single start-up. It provides the start-up, investors as well as start-up support organisations with thorough insight and ability to change directions when needed. The constant changing environment for start-ups demands for the ability to rapidly change plans and/or already made actions. The focus is therefore made on four categories for the start-up, namely Business Concepts, Customer Relations, Organisation, and Operations. Subcategories define details and actions needed to be taken, so that the whole organisations and its stakeholders are aligned in the development. Relevant resources and stakeholders involved do by this tool have an excellent indication of the development of the venture. Working with the tool needs certification and at the moment business advisors and educators in many different organisations from incubators to government agencies and universities are certified. They all customise the StartupWheel to their specific needs and the types of entrepreneurs they are working with. Today more than 50 of these kinds of organisations use the tool, including The Danish Enterprise and Construction Authority and universities all over the world.

One of the main advantages is the ability to use it as a one-to-one dialogue session tool between entrepreneur and the consultant/certified person, but also as an instrument for the “homework” (development) of the start-up and for networking. Thus the incentive and possibility to move forward is present and obvious for the entrepreneur (and the team behind it) and saves time, money and secures focus only on relevant stuff. The use of the StartupWheel at universities provides the institutions with a tool that has credibility due to the many users worldwide. Of course other tools and initiatives are known worldwide as to put the emphasis on “action” rather than a traditional business plan that often is a descriptive exercise, and many of these tools are also good instruments, but the extension worldwide of this particular tool shows the viability and credibility as a significant lever for start-ups.

For more information, see <http://www.startupcompany.com/>. Free webinars are frequently offered for insight and as introduction to the product.

Box 2. The “One-door-in”-approach – Copenhagen School of Entrepreneurship (CSE)

An initiative that started as a bottom-up project is the Copenhagen School of Entrepreneurship (<http://cse.cbs.dk/>) at Copenhagen Business School in Copenhagen, Denmark. As a student interested in entrepreneurship (in this case entrepreneurship means all aspects, including intrapreneurship, social entrepreneurship, creativity etc.), this is where you go and get concrete knowledge, help, and inspiration.

The initiative existing of originally six different entrepreneurship-oriented organisations gained and achieved in dialogue with university management access to physical premises at the university from where the idea could develop. The rationale was to create a visible and tangible environment for building the university's platform for entrepreneurship including incubator, event, educations, and research. Each organisation kept on focusing on their own speciality (e.g. dealing with business plan competitions, the development of network among educators, the development of entrepreneurship education, getting students interested in entrepreneurship and the like), but by working together and communicate the overall purpose of the unified effort rather than sub optimise the work, a coherent effort was made as to change the mindset and attitudes among all the stakeholders at the university. The organisations brought into the work their own resources and objectives, so the extra resources provided from the university was not substantial, but the moral support from management meant that a long term basis for development was secured. In the beginning, the main target groups were the students at the university, but over the last couple of years the initiative is now targeting faculty and business too.

Today CSE is the melting pot and meeting point of most entrepreneurship interested students in the Greater Copenhagen area as it is at the time the only university offering an almost full range of services regarding graduate start-up. Events, seminars, teambuilding, access to mentors, law experts, office space etc. are included in the offering. One of the aspects of the success has been the visibility of the activities, a focused communication strategy, and the access to a critical mass of students. In the beginning it was merely students from Copenhagen Business School attending (and quite interesting a great amount of international students – they are a very interesting resource in getting awareness created at campus), but over time the rumor and greater awareness of activities attracted students from other universities. This cross-fertilisation meant even better possibilities for different backgrounds to team up in venture creations, and consequently a positive spiral effect took place. From being a bottom-up initiative, the awareness eventually got to educators, researchers, and management and has now lead to two more highly esteemed and heavily financially supported joint ventures in the region between three universities, one being Next Generation (<http://www.nxtgen.dk/en/>), that also includes the educator and research element as well as an enhanced interaction with businesses, society, and start-up support organisations.

The challenge was from the beginning getting faculty to engage in the initiative, as entrepreneurship was (and still is in certain ways) regarded as an “add-on” to education and research rather than an (possibly) integrated part of education. In that respect it has been a bottom up-initiative supported by (in the beginning) few engaged professors and educators, but as the initiative showed progress and successes, got the management's attention and the “winds of change” regarding entrepreneurship at university level became talk of the town over the last couple of years, the formalisation and development of innovation and entrepreneurship support is now well integrated at Copenhagen Business School in close co-operation with others of the biggest universities in the Greater Copenhagen area.

This exercise can probably be possible elsewhere as well, also at TU Ilmenau and FHS. The keywords are access to physical premises, engaged student organisation(s), support from top management and close interaction with the external support structures in the local area.

For more information, see <http://cse.cbs.dk/>.

Box 3. Creation of new cross-disciplinary educations as platforms for new ventures

At Aalborg University in Denmark the tradition of creating new cross- and inter-disciplinary educations is one of the backbones of the university. The pedagogical and didactical principles of Aalborg University are the problem based and the project based way of learning, called "PBL – The Aalborg model".

The combination of new insights aimed at the ever changing world and the cooperation between faculties opens the door for new blending of technical skills. Examples of this are the educations Medialogy that combines technology and new media platforms and Technoanthropology that combines technology and the insight in human behaviour. These combinations are developed to create understanding and implementation of new knowledge and markets in the global society (www.aau.dk).

Aalborg University's tradition of having close collaboration and contact with business life and society when it comes to education and research is one of the reasons and rationales for a proactive and somewhat foresighted approach towards education as to secure high employability among its students. The dialogue and contact with the surrounding society makes way for the creation and implementation (and accreditation) of relevant and up-to-date educations that deliver candidates that are ready for the inter-disciplinary tasks and environment in today's businesses and organisations. Aalborg University strives to create cross-disciplinary education and research thus having the faculties working cross disciplines and traditional subject areas. Still maintaining the need and education for specialisation, the students are throughout their time at university working with real life problems and projects in groups. This give them both theoretical depth and understanding as well as broad competencies within for instance group dynamics, cross-disciplinarity, and an ability to relate to given challenges and task rather than theoretical exercises.

This pedagogical and didactical approach has two conspicuously results: Aalborg University's students are by far the students in the country to graduate within the official duration of their study programme, and they are also the ones who get a job quickest after graduation. This calls for the different faculties within the FH Schmalkalden to join forces and develop new cross-disciplinary educations. As more and more faculties offer project oriented education in cooperation with business and industry, a closer look at new study combinations could be an option. Especially if the university act upon the recommendation of an enhanced look at the region's need and wishes for a development structure within new and undiscovered areas and lines of business.

For more information regarding Aalborg university's model for problem based learning (pbl), see here <http://www.en.aau.dk/about+aalborg+university/the+aalborg+model+for+problem+based+learning+%28pbl%29/> and for a closer look at the university's cross-disciplinary education, see here <http://www.en.aau.dk/education+%26+programmes/>

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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	
<p>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.</p>	
Criteria	<ul style="list-style-type: none"> • 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	
<p>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.</p>	
Criteria	<ul style="list-style-type: none"> • 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.
<p>Source: OECD (2010), "Universities, Innovation and Entrepreneurship: Criteria and Examples of Good Practice", OECD Publishing. http://dx.doi.org/10.1787/5km7rq0pq00q-en, adapted.</p>	

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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