CASE
Competencies for a sustainable socio-economic development

CASE

Report Needs Analysis WP1

Free University of Bolzano P2 & Terra Institute P7

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Abstract

The report represents the main outputs of the needs analysis of work package 1 (WP1) within the CASE project. The results play a central role concerning the next steps of the project. Firstly, terms and theoretical concepts are clarified. Secondly, the analysis provides basic information and data for the following work-packages. The specific aims of the report and WP1 is to summarize concrete needs and necessary competencies for socio-economic development and more specifically sustainability driven entrepreneurship. For this purpose a qualitative research approach was chosen to bring together perspectives of enterprises and universities concerning a future collaboration as possible starting-point for a long-lasting multi-stakeholder network. Furthermore an analysis of best practice examples was necessary in order to create synergies and use existing knowledge and good experiences of teaching towards sustainability driven entrepreneurship. As the results show, both, companies and universities, are highly aware of the huge challenges for society, economy and natural environment on a global but also regional level. That calls for integrated, holistic approaches and for comprehensive socio-economic transformation processes, involving various stakeholders from entrepreneurial, societal and educational contexts. Both, interview-partners from universities and enterprises agree that the grand sustainability challenges call for a specific bundle of competencies that they define with very similar subcompetencies. Both point out the need for a holistic thinking that includes various levels and domains, in order to encounter the growing complexity. For both, enterprises and universities inter- and transdisciplinary formats of study and research are of utmost importance. As disciplinary analysis quickly reaches their limits, research and practice for sustainability require comprehensive and integrated approaches. Both, companies and universities underline the importance and the outstanding opportunities for innovation. Multi-stakeholder networks seem to provide the right learningenvironments for complex sustainability issues. As such, most of the interview-partners have experiences in working within. Important for successful networks seem to be a common understanding of objectives and interests, but also clear defined roles, structures and rules of collaboration. As the analysis of the best practice examples show, there are less university formats, which focus on multi- stakeholder networks. An output, which could be key starting point for the future development of an European Master in Sustainability driven Entrepreneurship.

1. Introduction

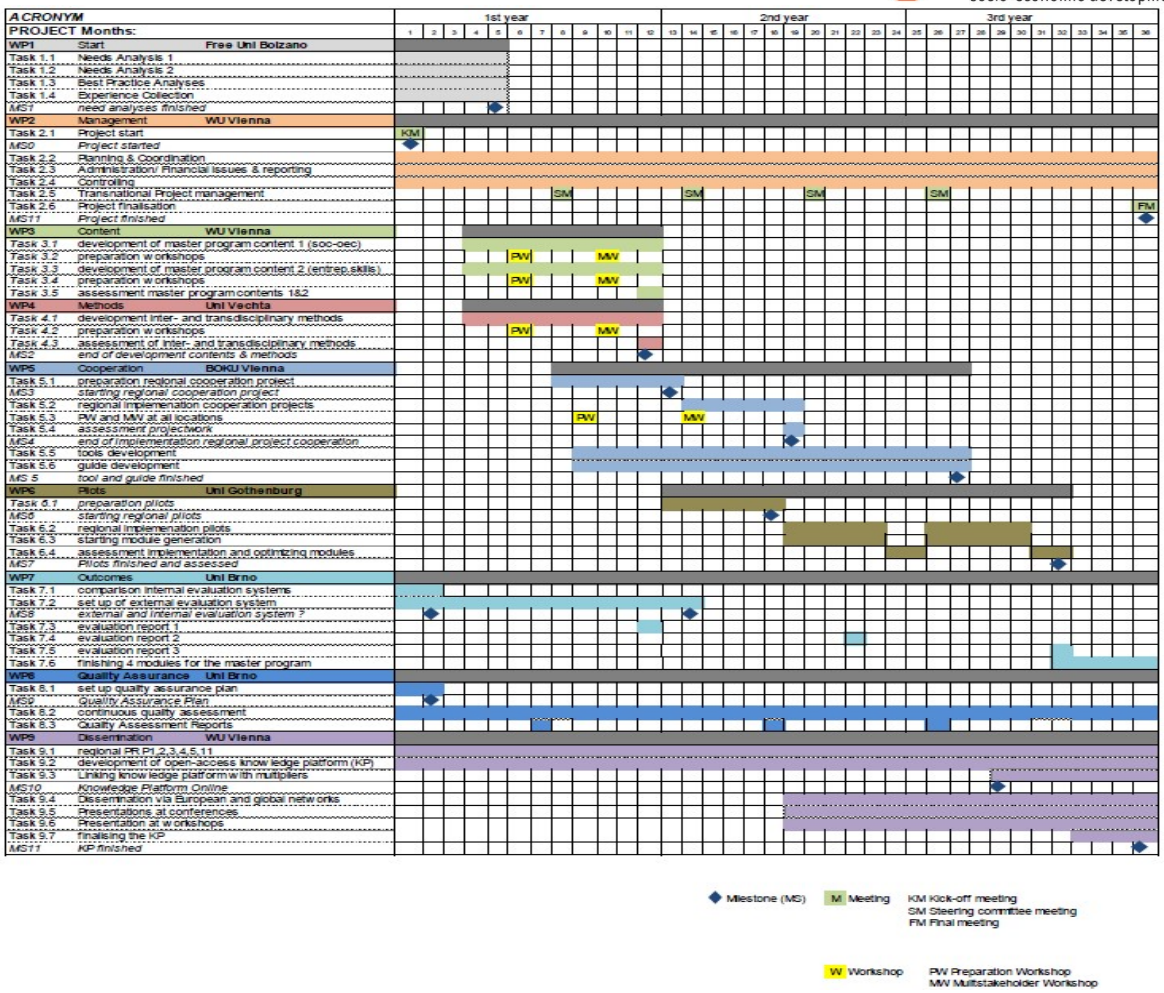
The following report aims to show the results and outcomes of the needs analysis (WP1). The first part gives an overview of how the need-analysis is embedded in the project-structure and objectives of CASE and gives an outline on the research-conception. The second part is concentrated on theoretical background and key terms, used in the project. Chapter three contains profiles of the five European regions, where the project is embedded and descriptions of the interview-sample. Chapter four to seven reflect on the main-results of the needs analysis, concentrating on four thematic-complexes:

1. Understanding of a sustainable socio-economic development
2. Competencies for a sustainable socio-economic development/ sustainability driven entrepreneurship
3. Gaining competencies for a sustainable socio- economic development
4. Learning in multi-stakeholder networks

These four chapters follow the same structure: They start with the main outcomes of the interviews with companies and universities and conclude with a short integrative summary of the most relevant outputs. Chapter eight contains the analysis of the Best Practice examples, which are summarized in a matrix. Finally the analysis part of the report is concluded with an overall summary of the main themecomplexes, the competencies, the methods and the corresponsive Best Practice examples. The Annex contains a literature-review, interview-guides and detailed descriptions of the Best Practices examples.

1.1 Objectives and Context of WP1

The needs-analysis is the starting work-package of the project CASE. As the milestone-plan shows, it has a central relevance for the whole project. Firstly, because it covers the starting-phase, where terms and theoretical conceptions are clarified and the application is set in action. Secondly, the analysis provides basic information and data for the following work-packages.



Graphic 1: Milestone-plan of the CASE project

The needs-analysis contributes to the overall long- and short-term objectives of the project:

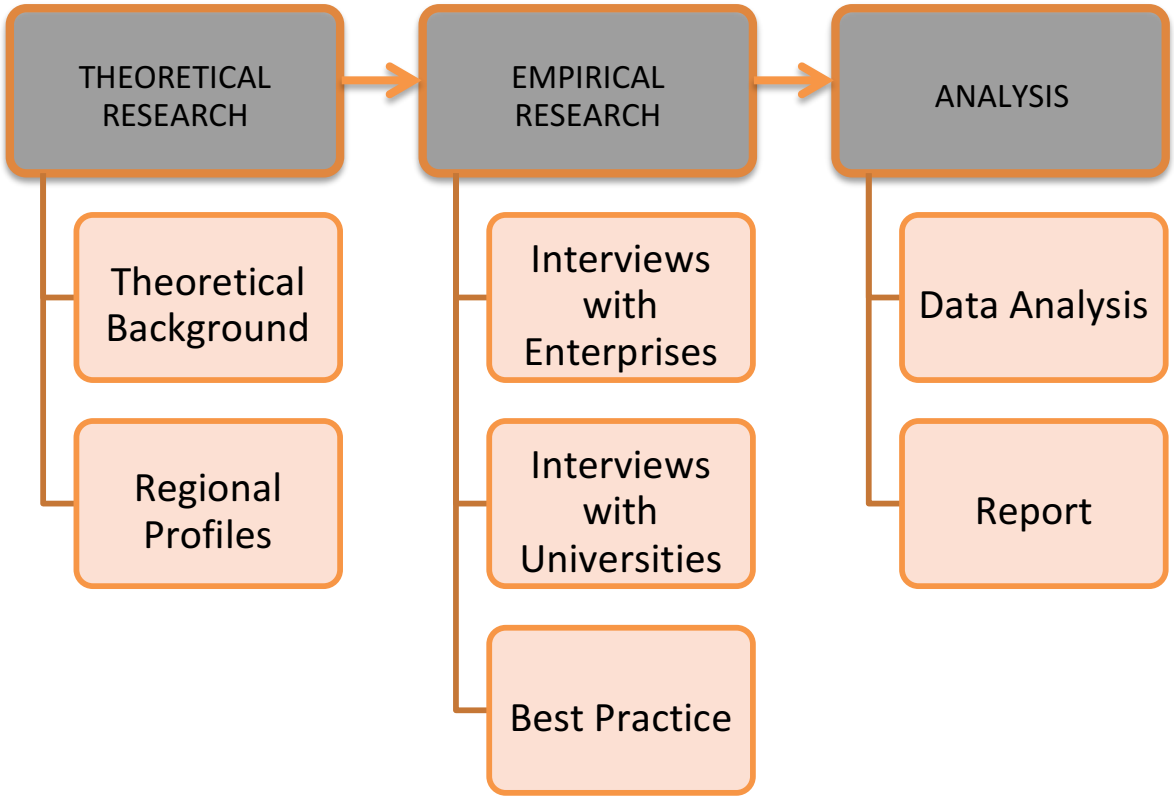
- To develop innovative ways of teaching, learning and research for tackling the recent challenges of a sustainable socio-economic development
- To exchange new and innovative knowledge and strengthen the information-flow within the academic community in regard to inter- and transdisciplinarity, service-learning and sustainable education
- To strengthen the information-flow between academic community and private companies
- To develop a new European Master Program and provide the necessary knowledge for its transfer and implementation at other European universities through an open access modular structure.

Moreover it follows some work-package specific objectives:

- To gather knowledge about perceived needs and necessary competencies, from entrepreneurial as well as academic perspective, in order to meet the needs of sustainability driven entrepreneurshipin an appropriate way.

- To provide an empirical basis for the further work-packages, what means to give an overview of contents for work-package 3, methods for work-package 4 and to outline successful inter- and transdisciplinary work which is main-part of work-package 5 and 6.
- To provide an analysis of best practice cases, in order to create synergies and use existing knowledge and good experiences of teaching towards sustainability driven entrepreneurship.
- To open the access to entrepreneurial and university partners for future collaboration as possible starting-point for a long-lasting multi-stakeholder network beyond the project.

1.3 Research Design



Graphic 2: Research structure

As graphic 2 shows, the research structure of the needs analysis consists of three main-parts:

- Theoretical research
- Empirical research
- Analysis

Theoretical Research

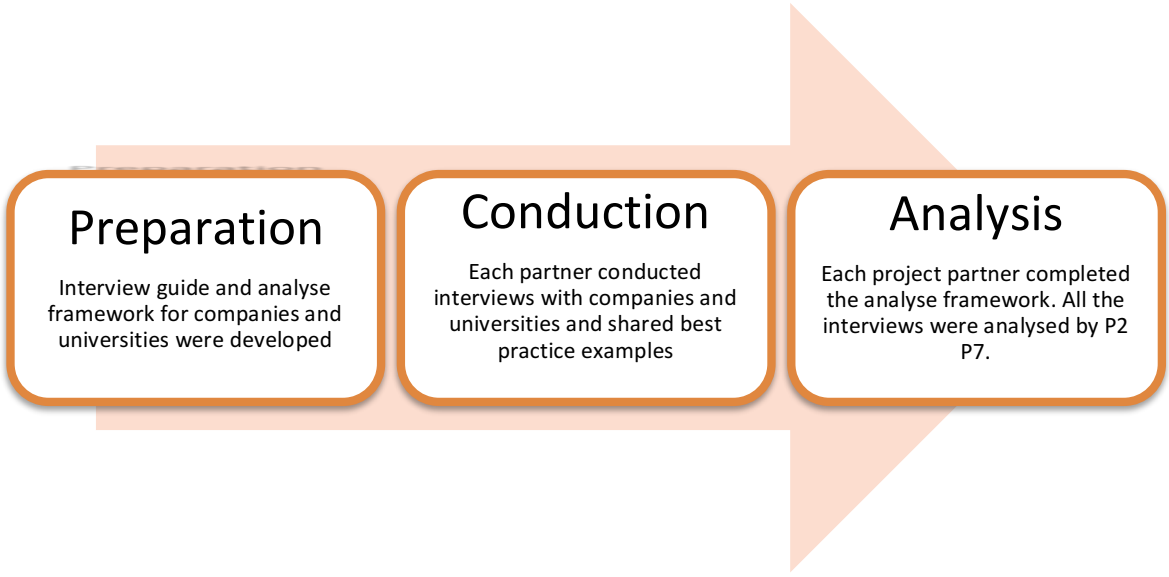
The first part concentrated on finding a common theoretical language and understanding of the key words of the projects. All partners contributed, in order to develop a short definition of the main concepts. This theoretical elaboration leads the discussion of the results of WP1 and influences the ongoing work of the

project as a whole. Furthermore regional profiles have been conducted by all partners in order to understand better the economic, educational and geographical embeddedness of the results of WP1 within the project.

Empirical Research

Interviews with Enterprises and Universities

The interviews, conducted with enterprises and universities, are center-staged in the empirical researchwork. As the graphic below shows, the research contains three main-phases.



Graphic 3: Research process

The interviews were arranged as open-expert interviews. For both, companies and universities, an interview-guide (See Annex A1, A2) was developed by the Terra Institute (P7) and the Free University of Bolzano (P2), covering four main issues:

- Sustainable socio-economic development: understanding and implementation
- Competencies for a sustainable socio-economic development
- Gaining competencies: methods and learning-lines
- Learning in multi-stakeholder networks: recent and planned cooperation

The initial section of the interview-guides contents general information about the organization which has to be gathered through desk-top research in the forefront. A further guide was developed, providing interviewers with practical instructions for conducting interviews.

Furthermore the sample for interviews had to be prepared. Close to one of the project-aims, the sampling-strategy focused on diversity of the involved organizations and interviewees.

From February to May 2015 a total of 48 interviews with companies and 25 interviews with universities have been conducted. Each region (Vienna, Bolzano, Vechta, Brno and Gothenburg) contributed through interviews with companies and universities. The interviews were arranged as open dialogues and in most

cases as face-to-face interviews, in six cases Skype-meetings were conducted. They lasted from one to one and a half hours on average.

Best Practice Analysis

The second main-part of the empirical research was the Best Practice analysis. In order to learn more on implemented measures, best practice examples were collected in all partner regions and beyond. Special interest was given to the question, what competencies are needed for a sustainable and responsible economy. The best practice selection considered following features:

- Contents, tackling sustainable socio-economic development
- Competencies in terms of professional, methodical and social competencies Innovative didactical approaches to create science-society interfaces
- Formats: Bachelor or Master programs, single courses, lectures, extra-curricular formats To gather well-selected information out of the abundance of courses and programs, each partner contributed with two or three best practice examples. The associated partners were involved in this work as well. In the forefront an analysis-frame (see Appendix) was prepared by Free University of Bolzano (P2). The most relevant best practice examples were described in detail and summarized within a matrix.

Analysis

The interviewers and project partners transcribed all interviews. For the analysis it was crucial to get familiar with the transcript. Therefore it was necessary to read and re-read each transcript, listening back to the audio-recorded interviews and to take notes. For the analysis a framework-matrix (see Annex A3, A4) was developed, one for companies by Terra Institute (P7) and one for universities by the Free University of Bolzano (P2). Following the qualitative content analysis by Mayring (2000) categories and codes were formed, reflecting the main-issues of the interviews. This set of categories and codes, each with a brief explanatory description of their meaning and examples of ideas, served as basis for the analytic work. Each interviewer was responsible for chartering data into the analysis framework matrix. In the following the single analyses were collected by the responsible work-package leaders. Main results and needs from enterprises and universities were summarized and compared with theoretical concepts.

Finally the most important findings, in terms of content, competencies and methods, were summarized in a matrix, reflecting the needs of a sustainable socio-economic development. The final analysis was elaborated by the Free University of Bolzano (P2) and the Terra Institute (P7) but with feedback-loops and strong support of all partners.

2. Theoretical background

In the following chapter the main theoretical key-concepts the project is dealing with are explained.

Socio-economic development reflects the interrelation between economic development and related social behavior. The scientific discipline of socio-economics examines how social norms, ethics and other social philosophies that influence consumer behavior shape an economy, and uses history, politics and other social sciences to examine potential results from changes to society or the economy. Recent literature does not provide a consistent definition for the term "sustainable socio-economic development". As sustainable development includes always a social dimension – next to economic development and ecology - , both terms seem to be exchangeable. Notably, research dealing with a "sustainable socio-economic development" emphasizes strongly the linkage between sustainability goals and norms, values, life quality or social well-being and analyses the social and economic structures of problems such as "climate change" or "unequal distribution". In particular this idea is reflected in emerging associative socio-economic structures, in networks as well as in local economies. Elsen (2013) emphasizes that these processes are a sign of the transfer of participative democracy to the economic sector. There is international consensus in terms of the theory and practice of community development that local and demand-driven economies are central prerequisites for the independent existence and sustainable development of communities, and the theoretical roots of community development. Considering the consequences of neo-liberal globalization and the changing structures of gainful employment, socio-political considerations need to pay much more attention than before to the local living space as a place of active participation and integration, of collective self-organization and sustainable development. Shaping sustainable social development raises questions about the logic behind socially integrated economic activity geared to maintaining the capacity for social, cultural, ecological and economic evolution.

Sustainability driven Entrepreneurship (SE)

Sustainability-driven Entrepreneurs, sustainable entrepreneurship or sustainability entrepreneurship are often used as synonyms within the research streams. Generally, all the terms see entrepreneurs as important drivers concerning a far-reaching socio-economic transformation towards a sustainable economy. The concept of socio-economic transformations is understood in the literature as an expanded concept of change, in terms of social innovation practices and technologies (Seyfang & Haxeline, 2012). Sustainability Entrepreneurs are actors who initiate and successfully implement sustainability innovations and pursue in addition to economic, social and ecological objectives as the basis of their organizational form (Rammel, 2012). For Schaltegger and Wagner (2011) sustainable entrepreneurship is the realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society. The focus lays not on the shareholders but on the interests of stakeholders. Sustainable entrepreneurship thus goes beyond the traditional understanding of entrepreneurship and turns towards personal initiative and the skills of entrepreneurs or a team. In their most recent collaborative work Young and Tilley (2010) suggest that in order to recognize, and promote, the role of Sustainability driven entrepreneurship, there is a need to shift to a much broader definition of wealth creation. In this context, sustainable wealth means contributing a holistic net benefit to the economy, community and the natural environment (ibd.). Nevertheless, Stagl (2013) outlines that Sustainability-driven entrepreneurs are confronted with trade-offs to survive in the market-based economy. Hence, Sustainability-driven entrepreneurship cannot be achieved within the current economic and regulatory frameworks. Going further, Cohen et al. (2008) also see the lack of adequate measures of the contribution to the social and ecological wealth of the community as a barrier for such a development.

Green Economy

The term „green economy“ is a highly ambivalent term. It is rather an oxymoron which intends to bundle different, partly contradictory, interests and strategies, and gives them a certain legitimacy and coherence. For the European Commission's focus on sustainability, the term provides a lose but very important framework for "sustainable growth" as wealth and growth shall depend not on using up natural resources, but shall be created (due to increased efficiency) without harming the environment. For the purposes of the Green Economy Initiative, UNEP has developed a working definition of a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP Website). In its simplest expression, a green economy can be thought of as one, which is low carbon, resource efficient and socially inclusive (ibd.). When the United Nations Environment Program (UNEP) started its Green Economy Initiative they stated: "The recent traction for a green economy concept has no doubt been aided by widespread disillusionment with our prevailing economic paradigm, a sense of fatigue emanating from the many concurrent crises and market failures experienced during the very first decade of the new millennium, including especially the financial and economic crisis of 2008. But at the same time, we have seen increasing evidence of a way forward, a new economic paradigm – one in which material wealth is not delivered perforce at the expense of growing environmental risks, ecological scarcities and social disparities"(UNEP 2011, p. 1). The CASE project does not follow this accentuation on sustainable growth. Complementary to "sustainable socio-economic development", which highlights social behavior and wellbeing, the use of the term "green economy" shall sharpen the focus towards economic sectors and companies.

Multi-Stakeholder Networks

Rolloff (2008, 237) defines multi-stakeholder networks as "an organizational structure that allows collective action beyond national boundaries, since the participation is voluntary and objectives and actions are negotiated among participants". In literature they often are branded as new forms of local and global governance (Bäckstrand, 2006). Theory often ignores the potential of multi-stakeholder networks for "effective consensus- building, knowledge sharing and interest representation" (Fransen & Kolk, 2007, 2). The element which distinguishes a stakeholder network from a multi-stakeholder network is partnership, as Rolloff (2008) points out. Multi-stakeholder networks emerge in order to solve a problem which "concerns actors from different societal spheres and nations (Rolloff, 2008, 237). Working in a multi-stakeholder network is rather complex, as it requests the interaction with different actors in a non-hierarchical way: "The inclusion of multiple perspectives results from sharing individual concerns with each other rather than focusing simply on the needs of only one stakeholder" (Rolloff, 2008, 238). In relation to Sustainability and Higher Education the cooperation with stakeholders outside academia like companies for example is seen as fundamental in order to face sustainable socio- economic development and sustainability driven entrepreneurshipin particular in Higher Education (Yarime et al., 2012, 101). The multi-stakeholder process involves the full involvement of all stakeholders, consensus-based decision-making and operating in an open, transparent and accountable manner.

The definition of sustainability driven entrepreneurship according to Schaltegger and Wagner (2011) describes sustainable entrepreneurs as innovative companies, driven via individuals and their values, goals, motivations and skills. Business models are based on innovations that are attributable to the ideas of the founders. As such sustainability driven entrepreneurship is in essence the realization of sustainability innovations (societal, environmental and institutional) aimed at the mass market and providing benefit to the larger part of society. Further Schaltegger and Wagner (2011) conceptualize sustainability innovation in a more general way via distinguishing between the private (eg.: sales increase, cost reduction) and social benefits (eg.: lower CO2 emissions or resource-efficient production methods) of innovations. Sustainable innovations are characterized in that either i) the private benefits of innovation compensates at least the negative social effects, ii) the social benefits of an innovation exceeds the private cost of an innovation or , iii) the private and social benefits of an innovation are positively. The purpose of this definition and the characterization of innovations as sustainable and nonsustainable require that the private and social benefits are measurable or monetized. In practice, however, this is rarely the case, for example, when it comes to the social benefits of reducing greenhouse gases.

Transdisciplinary Research Approach

Considering the emergence of new modes of science on the one hand, and the growing need to deal with sustainability problems on the other, it becomes apparent that a transdisciplinary approach (including and integrating also mono- and interdisciplinary work) is well-suited for sustainability research that deals with complex, ambiguous, real-world problems and aims at producing robust and practiceoriented knowledge. In this regard, the produced knowledge is oriented on a transformative perspective of doing research and should flow back in the praxis of the life-worlds. In other words, the knowledge should gain importance for those who co- constructed the knowledge and should be useful in order to initiate new transformation processes in society: „We embrace the notion of knowledge as socially constructed and, […] we commit ourselves to a form of research which challenges unjust and undemocratic economic, social and political systems and practices" (Brydon Miller et al, 2003, 11). Furthermore, transdisciplinary research can be understood as an approach that can: "(a) grasp the complexity of problems, (b) take into account the diversity of life-world and scientific perceptions of problems, (c) link abstract and case-specific knowledge, and (d) develop knowledge and practices that promote what is perceived to be the common good" (Pohl and Hirsch Hadorn, 2007, p. 20). As a central issue the relation teacher- student relation was mentioned which should become more democratic. Beside the institutionalized forms, learning on the job or through vocational trainings are considered as an appropriate way to gain and prove competencies in a practical way. Transdisciplinary processes in other words create an new collaboration among science and society which is able to emphasize joint problem definition, and knowledge integration.

Competencies and Key Competencies for Socio-Economic Development/ SE

Following Rieckmann (2012: 129), competencies are „individual dispositions of self- organization which include cognitive, affective, volitional […] and motivational elements". Competencies in terms of "knowledge, skills and attitudes" are not perceived as given facts but have to be understood within its process-based character. Within the set of competencies we define key competencies as competencies with a special significance in order to develop important social goals concerning a special framework like sustainability (Rieckmann: 2012: 129). More than general Competencies, Key Competencies "require a high degree of individual reflexivity" (Rieckmann: 2012:129). In particular regard to sustainability, Wiek et

al (2011: 204) defines key competencies as “essential for sustainability that have not been the focus of traditional education and therefore require special attention”. Competencies and Key Competencies for sustainability are linked to a context which is highly characterized by complexity, uncertainty, high velocity of social change, individualization, diversity, uniformity, etc. Therefore it becomes crucial that Key Competencies for Sustainability have to be seen as important skills which enable people to solve problems in a successful way “with respect to real- world sustainability problems, challenges, and opportunities” (Wiek et al.: 2011: 204).

3. Regional Contexts

Sustainable socio-economic development is embedded in a regional context. As such the findings of the interviews have to be seen towards the background of regional frames and conditions. The five regions, where the project-partners of CASE are located, are characterized through heterogeneity in many ways, reflecting Europe`s diversity. The following profiles of the regions Vienna, Bolzano, Vechta, Brno and Gothenburg aim to give insights in the regional structures.

Following a systemic approach region is defined through relations of acting subjects in a certain geographical frame. In case of our project the interviewed partners from enterprises and universities are important representatives of the regional realities. As such a short analysis of the sample of interviewpartners completes this chapter.

3.1 Regional Profiles

Vienna Region

Location: Vienna is the capital of Austria, one of its nine states and the cultural, economic, and political centre of Austria. The city today covers an area of 41.487 hectare and is located in the north-eastern part of Austria, on an extension of the Alps called the Vienna basin (Vienna City Administration 2014b). Besides the capital the Vienna region also includes the states of Lower Austria and Burgenland. According to a registry data analysis conducted by the City of Vienna Statistics Department (MA 23), Vienna has a total population of over 1.8 million as of 1 October 2014 and is growing fast (whole Vienna region 3.6 million).

Economic sectors: Vienna is characterized by a strong economy that draws its strengths from high productivity and a highly qualified work force in combination with low wage costs per unit of output (European Commission 2015). In 2011, the GDP of Vienna amounted to €77.9b and regional GDP reached €45,600 per inhabitant. The labor-force of Vienna consisted of 963,207 people in 2012. Most employees work in the tertiary sector (84.4%), while 15.1% work in industrial sector and 0.5% in the agricultural sector (ibd.). Compared to the national average (69.0%, 26.1% and 4.9%) these figures confirm that Vienna is a service-driven region, which can be easily explained by its role in administration, research and science and an orientation towards knowledge-intensive business services (ibd.).

Socio-economic challenges:

Vienna is known world-wide for its local welfare state, socio-economic homogenization and a high quality of life, accompanied by a lack of socio-spatial polarization. However over the last 20 years, internationalization has changed the city. While manufacturing declined substantially, services in general and finance and real estate in particular increased their share in the local economy. Local economic policies have supported high-tech sectors and cluster formation (biotech, IT, etc.). The urban fabric has experienced huge transformations, giving increased importance to real estate investment and large urban development projects. This has modernized the city, giving it a more cosmopolitan flair. Within the City of Vienna, however, there has been increased socio-spatial polarization, due to increased rents and rising unemployment 11,6% in 2014 (Vienna City Administration 2015). The costs of modernization are unequally distributed with a clear concentration in migrant households, esp. of Turkish and ex-Yugoslavian origin.

Higher Education: Extremely complex university structures that have grown over a long tradition as well as very young institutions characterize the higher education landscape in Austria and also the Vienna region. There are numerous Austrian institutions of higher education which offer a broad range of study options. According to Austria Statistik there were 189,877 registered students in 2013/2014 in Vienna of which 142.651 are studying at the University of Vienna, Vienna University of Technology and the Vienna University of Economics and Business (Vienna City Administration 2015). In Vienna and Lower Austria there are ten universities and six private universities. Further there are nine universities of applied science in the region. Above there are five university colleges of teacher e: ducation. The Diplomatic Academy of Vienna and the Institute of Science and Technology Austria (IST) are also private elite institutions.

South Tyrol, Bolzano

Location: South Tyrol is one of the two autonomous provinces that make up the autonomous region of Trentino-Alto Adige/Südtirol. The province has an area of 7,400 square-kilometres (2,857 sq mi) and a total population of 511,750 inhabitants (31.12.2011). Its capital is the City of Bolzano. The majority of the population speaks German. Around a quarter of the population speak Italian as their first language, mainly concentrated in and around the two largest cities (Bolzano and Merano), and a small minority speak Ladin as their first language.

Economic sectors: The economy of South Tyrol is characterized by a variety of sectors, from agriculture to industry to services, especially tourism. Furthermore, the mostly small-size natured and professionally diversified enterprises confer a great stability to South Tyrol's economy and offer many jobs, especially in the periphery. 69% of employed persons in South Tyrol work in the tertiary sector, 23% in the secondary sector, while 8% are employed in the primary sector. The development in economic sectors in South Tyrol bears comparison to international trends: the number of persons employed in agriculture has dropped while numbers working in the services sector have increased. Nevertheless agriculture in South Tyrol enjoys a higher status compared with the European average.

Socio-economic challenges:

In future the constructive co-operation between all social partners (economy, social affairs and environment) will become increasingly more important: economic understanding, the integration, of foreign residents, the social responsibility of enterprises and the fight against illegal employment will become ever more vital. South Tyrol is also lagging in respect of further and vocational training, an area, which is destined to become increasingly more important in future. Furthermore, increased co-operation between schools and the economy is necessary.

Higher Education: Multilingualism and internationality are the main characteristics of the Free University of Bolzano. The five faculties with a high number of lecturers (35%) and students (17%) from abroad deal with subjects connected to economics, the natural sciences, technology, computer science, design and the social and educational worlds. Teaching and research at the University are based on high quality standards and the faculties are part of international networks, i.e. the Euregio University with the universities of Trento and Innsbruck. This young and dynamic university at the crossroads between Italian and German culture and economy offers excellent conditions for studying in a multilingual region with an optimal student-lecturer ratio, especially high quality of living and lots of opportunities for sports and recreation. About 750 professors, lecturers and associates serve the university's approximately 3,500 students.

Oldenburger Münsterland, Vechta

Location: The Oldenburger Münsterland is centrally located in northwestern Germany in the Metropolitan Region Bremen/Oldenburg and consists of the two counties Vechta and Cloppenburg. Vechta and Cloppenburg are the two biggest and most important cities, too. It is a rural area with a low population density (~ 150persons/km^2). 70% of the area is used by agriculture.

Economic sectors: The Oldenburger Münsterland is to date especially an agricultural region and has the highest density of processing companies for poultry, pig and cattle farms (intensive livestock farming) in Germany. On average 274 million fowl, 795 million pigs and 277.000 bovine animals are reared every year in the counties. Such intensive agriculture is not without environmental protection issues. In addition to those processing companies the regional fruit and vegetable production with an acreage of about 4.500 hectares is an important economic factor. Since the 1990s the Oldenburger Münsterland has developed into a boom region of Lower Saxony. The industrial turnover has grown to more than 6.5 billion euros, the export quota by 137%. The county of Vechta had position number 61 of 393 in the economic ranking of Germany in 2011. The main lines of industry are food and luxury foodstuffs with a share of 49% of the industrial turnover, followed by plastic processing with a share of 14%. Further key industries are mechanical engineering and plant manufacturing in the sector of agriculture and the construction. Particular growth has been recorded in these fields. Dominating company structures are medium-sized businesses with a high performance flexibility and staff identification. These main lines of industry offer "complete solutions" from one region for the world market.

Socio-economic challenges:

More than 290.000 people are now resident in the Oldenburger Münsterland with sharply increasing tendencies (30% since 1990). This rapid increase is primarily due to two trends: immigration from Eastern Europe of people with German roots, and a steadily increasing birth rate. The counties Vechta and Cloppenburg have the lowest average age of the population in Germany, due to the unusually high birth rates of about 1.7 children/female inhabitant. The unemployment rate in the Oldenburger Münsterland in 2014 was 4.5 %; about 2 percentage points below the national average. Still demographic change, shortage of specialists in rural areas, an inflow of guest and migrant workers, increasing youth unemployment, tendencies of urbanization and the agricultural reform to prevent problems arising from intensive livestock farming are the future challenges.

Higher Education: The University of Vechta is the only public higher education institution in the Oldenburger Münsterland. It is a small university with round about 4.500 students and a limited range of courses (teacher education, social work, gerontology, social services, cultural change, globalization in rural settings). But there are strong linkages to other universities in Lower Saxony like the University of Hannover. Furthermore a small private Technical College for Economies and Technology (PHWT) is located in Vechta.

South Moravian Region, Brno

Location: The South Moravian Region, which covers an area of 719.555 ha, is located in the southeastern part of the Czech Republic near the border of Austria and Slovakia. It has a population of 1.169.000 inhabitants, 673 municipalities and 49 cities. The metropolis, the second largest city in the Czech Republic, Brno, with approximately 370.000 inhabitants, is an important economic, administrative and court of justice center, well-known for its universities and trade fairs. The advantage of the region is its excellent transport accessibility and strategic location at the crossroads of trans-European road and railway distance routes, which are important arteries joining Western Europe to East and North to South. An international airport (Brno-Tuřany) is situated in Brno.

Economic sectors: The South Moravian Region has a large economic potential. Especially in recent years, it hosts an increasing number of businesses in computer technology, telecommunications, software development and other hi-tech industries. The regional government strongly supports the development of technological and biotechnological incubators to help new companies. The engineering industry, centered in Brno, has an important role in the economy. The electronics industry is also strong, building on a tradition of more than a century. There are four major breweries in the region. South Moravian agriculture is an important part of the economy. Agricultural land accounts for 60% of the area of the region, of which 83% is arable land. Southern Moravia is known for its viniculture (over 90% of the vineyards in the Czech Republic can be found here), the region is characterized by many small wine producers and wine cellars. There is a strong tradition of growing fruit and vegetables. The Northern regions are important centers of forestry and wood production.

Socio-

economic challenges: As regards socio-economic challenges specific to the region, these cannot be separated from the economic, social and environmental situation in the Czech Republic as a whole. Neoliberal government policies in the past years have led to a widening gap between the rich and the poor, with minorities, young people and women the worst affected. In 2012, unemployment among young people in the whole of the Czech Republic was around 20%. The tax base erodes as corporations become more adept at tax evasion, while small and medium firms are plagued by excessive government regulation. An issue specific to South Moravia as a warm and dry region is the larger impact of climate change and long-term bad land management, leading to increased risk of draught, water shortages and disruption of agriculture-based livelihoods in the region.

Higher Education: In Brno there are a number of public and state universities - Janáček Academy of Music and Performing Arts in Brno, Masaryk University, Mendel University in Brno, University of Defence, University of Veterinary and Pharmaceutical Sciences Brno and the University of Technology.

Västra Götaland, Gothenburg

Location: Västra Götaland (West Sweden) is a region in the western part of Sweden. In December 2013 the region had 1.6 million inhabitants (17% of the population of Sweden) in 49 municipalities. The population has increased by 17% since 1970 of which 7% is since 2000. The largest population is found in Gothenburg (550 000 inhabitants) while Ulricehamn covers the largest area (1 046 km^2). The region covers an area of 25 247 km^2 on the Swedish West coast. 45% or the area is used for forestry.

Economic sectors: The GDP for the region is 377 000 SEK/inhabitant, but with large differences between the municipalities ranging from 158 000 SEK/inhabitant in Lerum to 513 000 SEK/inhabitant in Lysekil. 88% of the employees in the region work in SME. The unemployment rate in the region is 5.9% and decreasing. The unemployment varies from 2.5% in Öckerö to 11.1% in Trollhättan. Västra Götaland with its vast rural areas has intensive farming and forestry as well as several middle sized cities and many large industries as SKF, Volvo, oil refineries, and cellulose industries. The port of Gothenburg is the largest port in Scandinavia, with more than 11,000 vessels each year carrying 30% of the Swedish foreign trade in value and 36% of the marine tonnage. The region is the home of Sweden's largest cluster of companies with logistics and transport skills. In Gothenburg most houses and offices are heated by waste heat from refineries and waste, buses run on electricity or biogas. There are also innovative solutions for energy-efficient homes – both new-constructions and renovated houses. Furthermore, investments are being made in renewable energy such as wind and wave power. With roots stretching back to the days of heavy industry, the region has made the successful transition from an industrial heartland, to a greener and cleaner waterfront region. It is this journey that has created a world leading Green-tech cluster. Despite strong conservation laws, concerned scientists and officials there are still several crucial environmental and sustainable challenges to deal with.

economic challenges: Lately the large number of immigrants, 16 000 (2014), is also an important challenge – they both need and want to be more included in society and they are also a great resource for a sustainable development of the region and of Sweden. Many of them are highly educated but have to

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wait too long being employed, mostly because of bureaucratic obstacles. The uneven distribution of GDP and unemployment also creates socio-economic challenges in the region.

Higher Education: Sustainable development and environmental issues are prominent research areas and many educational programs also deal with environmental and sustainability issues. The region has 5 universities with a total of 60 000 students. The University of Gothenburg is the largest with more than 30 000 students. Chalmers University of Technology has 10 000 students. Centre for Environment and Sustainability (GMV) is a joint network organisation between Chalmers University of Technology, University of Gothenburg and private actors. GMV promotes research and education for sustainable development. GMV creates and encourages research projects and multidisciplinary initiatives. Cooperation with the business community in western Sweden as well as the provision of information and education to the general public are part of GMV's responsibilities. Both research and training are firmly founded in existing scientific disciplines.

3.2 Interview Partners

Interview Partners from Enterprises

In all five regions interviews were conducted with regional enterprises and non-profit organisations. 48 interviews were conducted in total; 21 in the Autonomous Region of Bolzano, seven in each other region. In selecting the interview-partners we aimed to cover a wide range of entrepreneurial realities, in order to provide an empirical basis for later conception of inter- and transdisciplinary modules, which should address students from various disciplines and give access to different professional contexts and working environments. Thus the sample represents different economic sectors, different sizes of organisations and different implementation-levels of sustainability.

Economic sectors

	Production		Services			**Total**
	Machinery/ Construction	Energy/ Organic food	Tourism	Trade/ Handcraft	Services Consulting/ESD	
Vienna	1	1		3	2	7
Bolzano	8	3	7	2	1	21
Vechta	1	1		1	4	7
Brno					6	6
Gothenburg	1	2			4	7
Total	11	7	7	6	17	48

Table 1: Allocation towards economic sectors

As the table shows, 18 interview-partners are working in the producing-sector. Eleven are active in "conventional industries", like machinery, construction or food-production, seven in more "greenoriented" fields, like production of renewable energies or organic food. While the energy-sector acts as pioneer for sustainable solutions since decades, it is remarkable that also traditional industries begin to integrate sustainability-issues more and more. 28 of the interview-partners are working in the servicesector; nearly half of them in tourism, trade and handcrafts. The largest group of interviewees is active in providing services like consulting, training and education or community-services. One of the interviewed organisations provides social services as big public institution. It has a specific position as it belongs to the so-called "Third Sector". Four interview-partners are intermediate institutions and represent the interests of larger groups of enterprises. About a fifth of the interviewed organisations are working non-for-profit. Some have developed from non-for-profit start-ups to profit-oriented enterprises. The mixture of our sample gives interesting insights in different sectorial needs and raises the question, if some sectors are more prepared for transformation towards sustainability driven entrepreneurship. Also the criterion of profit-orientation has interesting impacts on sustainability driven entrepreneurship and could be an interesting issue for further research.

Size classification

Employees	Micro 1 - 10	Small 11 - 50	Medium 51 - 250	Large > 250	**Total**
Vienna	4	1	1	1	7
Bolzano	1	9	8	3	21
Vechta	2		3	2	7
Brno	2	3	1		6
Gothenburg	1	1	3	2	7
Total	10	14	16	8	48

Table 2: Allocation towards size

The size-classification follows the Reference of European Commission (2005), which proposes a classification along the amount of employees. As the table shows, our sample has a great variety, also in term of size: from one-person enterprises up to companies with 26.000 employees.
In the sample three groups of enterprises were identified each with specific opportunities and challenges of implementing sustainability.
The first group are large companies, where sustainability-issues have a strategic position, represented by the environmental or sustainability-department or at least a sustainability-manager. Sustainability measures undergo clear evaluation- and monitoring-processes, especially when they are linked with expensive research-activities or higher resource-costs. They are often well connected with universities and provide interesting possibilities for cooperative research- and teaching projects. A second group, the medium-sized companies, are sometimes underestimated in terms of transition-power. Most of them are active in "classical" economic sectors and therefore are regarded as the backbone of economy. Many of

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them, especially family-owned companies, are well embedded in the region and orient entrepreneurial decisions towards a high level of responsibility for people and environment.

In the third group, the small companies, some interesting, so-called “fast innovators” were identified. They are more flexible to react fast towards socio-economic dynamics. They often act in niches, initiating and fostering innovations, far away from economic mainstream. As such they often give important impulses for larger transitions, not always having the power to progress an initiated change.

Sustainability indicators

Many of the interviewed companies are working with accepted international and national standards and norms for sustainability. Some have certified products or processes, like Bio-certifications or ISOcertifications, which are common and well accepted. Others elaborate the Sustainability Report, which provides an insight in sustainability activities in all three dimensions. It shows a kind of farsightedness, as the European Commission plans the compulsory Sustainability Report for enterprises with more than 500 employees. A most interesting indicator is the participation in strategic alliances for sustainability. Some interview-partners are member of B.A.U.M e.V. – Bundesdeutscher Arbeitskreis für Umweltbewusstes Management. The association addresses all business-sectors and is the largest European enterprise-network for sustainable economy. Other interview-partners, especially in Italy, are members of ECG movement - Economy for the Common Goods. It involves companies from all sectors and fosters the change towards a responsible, cooperative and human way of economy. Core of ECG is a reflexion process of social and ecological impacts along a balance sheet, with the possibility for an ECG-audit. It is not valid to categorize the level of sustainability along those certificates, as criteria, auditprocesses and monitoring-systems are not comparable. We also have to take into account that a lot of companies act sustainable but don`t break it down to visible criteria. But it gives evidence of raised awareness and a broader understanding of sustainable issues, beyond the single ecological dimension – an important pre-condition for working in multi-stakeholder networks.

Interview Partners from Universities

From February to May 2015 a total of 25 interviews have been conducted. Five in each region of the Erasmus+ project (Vienna, Vechta, Bolzano, Brno and Gothenburg).
The criteria for selecting interview partners from universities were:

1. Interdisciplinary
2. Different positions in hierarchy
3. SE issues

For selecting the interview partners it was important to interview responsible professors and lecturers from different faculties which represent different positions in the professional (academic) hierarchy. In this way it was possible to cover the vertical and horizontal perspectives in promoting sustainability driven entrepreneurship at universities. Following this argumentation line, interdisciplinary was a further criterion for conducting the interviews with universities. Concerning the sample, we can distinguish between those contexts who have a longer tradition in including themes of SE in the study curricula and those who have not. The University WU Vienna and BOKU for example show a longer experience with respectively integrated master programmes or courses. This is also the case of the University of Vechta, where sustainability has become a strategy for the whole University and it has also been institutionalized with a sustainability council. Since 1970/ 1980 sustainability as a cross cutting theme is promoted at the university. At the University of Bolzano and Brno there are less study programs which deal with sustainability. Themes of SE are mainly integrated/ included in already existing study programs (courses,

curriculum, objectives, study programme, thesis courses, thesis). Having an interdisciplinary sample is also important concerning the next work packages and having the interviewed persons as possible partners for the pilots and service learning projects. The table below shows the interdisciplinary approach which characterized the interviews with universities.

UNIVERSITY	FACULTY/DEPARTMENT/INSTITUTE
University of Economics and Business (WU) Vienna University of Natural Resources and Life Sciences (BOKU) Vienna	• Institute for Entrepreneurship and Innovation • Department of Economics and Social Sciences • Institute of Agricultural Economics • Institute for Sustainable Economic Development
University of Vechta University of Bremen University of Lüneburg	• Faculty of Informatics, Economics and Law, Oldenburg • Institute of Sustainability Governance (INSUGO) (en/institutes/insugo.html) Institute for Environmental and Sustainability Communication (INFU) Lüneburg • Faculty of Economics, Bremen • Department of Economics and Ethics, Vechta
Free University of Bolzano	• Faculty of Economics and Management • Faculty of Education • Faculty of Design and Art • Faculty of Science and Technology
Masaryk University, Brno	• Faculty of Economics and Administration • Faculty of Social Studies • Department of Environmental Studies
University of Gothenburg	• Faculty of Fine, Applied and Performing Arts • School of Social Science • Environmental Science • Faculty of Economics • School of business, economics and law.

Table 3: Designation of the interview partners (universities)

4. Sustainable Socio- Economic Development/ sustainability driven entrepreneurship

Sustainable socio-economic development is a core element of the European Union's Sustainable Development Strategy (Eurostat, 2013). The strategy sets out the objectives of promoting a prosperous, innovative, knowledge-rich, competitive and eco-efficient economy, which provides high living standards and full and high-quality employment throughout the European Union.

The following chapter shows the main outcomes of the interviews with enterprises and universities. It aims to get a picture, how sustainable socio-economic development is understood, which role, opportunities and obstacles are seen in a transformation-process towards sustainability and how enterprises and universities implement sustainability in their daily business.

4.1 Entrepreneurial Perspective

Understanding of Sustainable Socio-Economic Development

Most interview-partners connect sustainability with the three dimensions – the ecological, social and economic one and have either the concept of the three columns or the so-called "magic triangle" in mind. They stress the holism of the approach but are also aware of the challenge to follow an integrative concept, where the three dimensions are in balance (Kopfmüller et al. 2001). For others, sustainable economy is linked with a long-term orientation, especially in using natural resources and natural environment. An approach that is more protection-oriented and sometimes also linked with harsh critics on the widespread philosophy of growth in economy. Others take the responsibility for future generations into account. *"Our earth we haven`t inherited from our parents but lent from our grandchildren. Therefore we have huge responsibility to tread the natural and cultural treasures with respect and attentiveness"* (Int. 22, companies, april2015). Some explicitly mention the definition of the Brundtland Report (1987), which is formulated as follows: "… to act in a way that future generations will find equal conditions to live". Some, not only social entrepreneurs, focus on people`s welfare and meaningful jobs, when talking about sustainable economy. *"Economy has to serve the wellbeing of people, not the other way round. Of course it is necessary to earn money but that is not central"*, one entrepreneur points out (Int. 24, companies, april2015).

Another group of interviewees, especially from the more rural areas, put the focus on regional cycles and cycle-economy, an issue that gets more and more relevance. Last but not least sustainable economy is very much linked with doing business in a responsible and honest way. The traditional codex of the "honourable businessman" celebrates a rebirth.

Understanding of Green Economy

As "green economy" is a key term of the strategy of the European Union "Europe 2020", it was integrated in the interviews as well. For half of the interviewed persons it has a positive connotation and is linked to a future- oriented path for economic development: *"Investing in green technologies could be a chance for Europe to gain a unique position, to create new jobs and to stay competitive on global markets."* (Int. 9, companies, april2015), is the attitude of one entrepreneur. *"The environmental and ecological aspects are considered and included in economy in a fair way – a standpoint that is in its turn profit-making"*, is the attitude of another (Int. 46 companies, may2015). Most opportunities are seen in the energy-sector, including new technologies for energy-efficiency and renewable energies. *"In future every company should work as a small power-plant, to cover their own demand and to supply private households in their neighbourhood"*, is the vision of an entrepreneur (Int. 11, companies, may2015). Also new concepts of resource using, like the Cradle to Cradle approach (Braungart M., Mc. Donough W., 2002) are regarded as forward-looking: *"Green economy means breaking the linear way of thinking. That means for instance being able to see waste as a resource and not just as trash"*, states one entrepreneur (Int. 45, companies, may2015). Science could have a leading-role in fostering green economy, through intensive research on sustainable alternatives and providing results to support companies in creating new jobs.

But also critical voices occurred. Some criticise the overweight of environmental and ecological aspects in "green economy" and the negligence of social aspects. Others criticise that "green economy" is profitoriented in the conventional way and therefore long-term consequences and global effects are often not taken into consideration. Solar cells for instance have a negative environmental impact, if the whole product-cycle is taken into account. Some also express the suspicion that a big part of "green economy" is just "green painting" or "green washing" to cover unsustainable developments in single companies and in global economy as a whole.

Opportunities and Obstacles in a Regional Context

Following Granovetter (1990) economic behaviour is never context-free but is always embedded in socio-economic and natural environments. As such it is important to know, how companies perceive their regional context, its opportunities but its challenges as well. In general the interviews reflect a great need to economic transformation in all regions. Sustainable development seems not to be just a recent trend but seems to become more and more a societal movement. That evokes transformationprocesses regarding all stakeholders and creates a certain pressure even towards regional governments to set up appropriate political measures.

Consequently preconditions for sustainability driven entrepreneurship and opportunities for innovation are regarded as better than ever. Changing awareness is considered as one of the key-aspects, economic prosperity as another. *"We live in a region, where sustainability is appreciated. As basic needs are satisfied, customers can afford sustainability, as a kind of surcharge"* one interviewee points out (Int. 6, companies, april2015).

Mind-sets of people are regarded as most limiting aspect. Sustainability thinking has not reached the broad society and thus the old way of business is perpetuated. Conventionally thinking big players and lobbies still dominate the markets and continue the "paradigm of growth-orientation". Higher costs, caused by using regional, organic or fair trade resources, are seen as challenge, as well as higher staffcosts in high-salary countries. Consumers who are willing and able to pay higher prices are still the minority.

Beside common views, the interview-partners have formulated specific perspectives of their regions, which are summed up in the following table.

REGION	OPPORTUNITIES	CHALLENGES
Vienna	• Region, where sustainability is high appreciated • Political support • Metropolis of Vienna: easier to find customers • Growing awareness of customers • Existing and upcoming networks • Sensitisation of conventional business players • Access to organic resources in foodproduction	• Few lobbying for sustainability • Big players, who have the decisionpower • Conventional business-thinking • Sustainability costs, especially higher staff-costs
Bolzano	Excellent preconditions to establish as sustainable region Intact nature and landscape Political autonomy Bridge between two cultures Small scaled economy and diversity in economic sectors Economic prosperity and low unemployment International reputation through tourism Living village-structures Awareness of people for nature & culture Development of a knowledge-society, following the example of Switzerland	Waste of nature and wilderness Lack of space and high land-prices Legal regulations and bureaucracy Public Funding policy EU-norms which don`t regard individuality of regions Power of lobbies and federations Turbo- capitalism and philosophy of linear growth and competition Little investment in research Lack of open-minded people and lack of visions and strategies for a sustainable region

Vechta	▪ Opportunity to position as sustainable region ▪ One consistent understanding of the region where all work along similar lines ▪ Sustainable companies as role models, who trigger development of related services. ▪ Large companies, who attract suppliers and keep jobs in the region ▪ Social infrastructure (e.g. Kindergarten) ▪ Cooperation with universities which attracts professionals	▪ Demographic change ▪ Lack of qualified staff ▪ Different and conflicting interests ▪ Globalization: world becomes bigger and more complex ▪ Many SME have not arrived at the topic
Brno	▪ Raise awareness through sound ESDprograms ▪ Support teachers` work ▪ Concept of resilience: change a thread into a chance ▪ Technological changes are necessary ▪ Change of the energy-system towards energy-autarky	▪ Lack of awareness and knowledge about sustainability - issues ▪ Ecological standards are behind of central Europe ▪ Resistance against solar energy and sustainable technologies ▪ Way, public institutions work and bureaucracy ▪ Financial sources
Gothenburg	▪ Holistic approach to ensure vision of a resource-efficient region Support ▪ through policies ▪ Future sectors: biogas, wind-power ▪ Innovative sustainability-oriented technologies	▪ Growing complexity and diverging interests ▪ European policies and decisions made too far away from citizens ▪ Societal challenge: a growing number of people, who structurally falls out of the social-system ▪ Rare technical competencies and lack of skilled engineers ▪ Different ability to think in new ways and to get the bigger picture ▪ Increasing cost-differences between Asia/Africa and Europe

Table 4: Opportunities and challenges in regional contexts

Opportunities and Obstacles for Start-ups

Opportunities for start-ups are regarded as quite good in all regions. Start-ups bring along the flexibility and creativity, which are necessary to act in a highly complex and dynamic world. Markets are not saturated and as such chances for being successful in niches are good. The most promising economic field seems to be the energy-sector. Developing technologies for renewable energies (wind, water, solar-power), for energy-efficient building and for energy-saving facilities are most often mentioned. *"Even the financial world is actually interested in green energy and supports a global development because they can see that that it is the future, but it can be hard to take that first step"*, one entrepreneur takes into account (Int. 43, companies, may2015). Further niches are seen in resourceefficient production, recycling-technologies and development of renewable materials. For social enterprises chances are also regarded as good, as huge demographic and societal changes, like overaging of citizens or big migration-movements call for innovative concepts.

Drawing the attention on the challenges for sustainable and social start-ups, there seem to be no big differences to other sectors. It is important to have a reliable business-model and the necessary financial sources to overcome the first years of little revenues. Therefore many start-ups arise and disappear very fast. Moreover sustainable start-ups face specific challenges. *"Sometimes you get into a normative conflict, if you should jump on technological innovations, for example integrating smartphone apps, and then "impose" them upon clients"*, one entrepreneur states (Int. 35, companies, may2015). Another concludes: *"Economic aspects should be in the foreground. On the other hand ideological aspects have the same importance but need economic stability"* (Int. 3 companies, april2015).

Motivation and Starting-point for Change towards Sustainability driven Entrepreneurship

The question for motivation and starting-point seems of great importance, as it is the driving-force to bring ideas to action.

In the interviews three types of motivation were found:

Personal motivation

- Responsibility for society and environment
- Strategic-economic decisions

Personal motivation

More than a third of the interviewed entrepreneurs quote personal reasons for change towards sustainability driven entrepreneurship. For some the change was linked with the question of meaning and happiness or the wish to achieve something valuable in life. For others sustainability is part of their philosophy and private life-style, sometimes with a long history in their personal biography. *"I was member of the "Movement for an Autonomous Live" in the 1970. There I guessed that we need an alternative way of economy and started my own business. In the beginning I was regarded as mad but I didn`t stop, as it is an inner conviction"*, an entrepreneur says (Int. 16, companies, april2015). Others are parents and sorrows about the future of their children are driving-forces for being a role model. Also fears and anger are mentioned as starting-point. *"I read a lot about the housing-bubble, backgrounds of the financial disaster and peak oil. That created fear and uncertainty about my and the future of my family. But I didn`t want to be swept away by fear, as such I began to work with it and began to integrate sustainability also in my personal lifestyle"* (Int. 47, companies, april2015). For some the interest in sustainability-issues, like CSR or Carbon Food-print, was the starting point.

Responsibility for society and environment

Many of the interviewees are concerned about the current economic developments and the effects of the traditional linear economy-system. *"We are in a transformation-process. What I observe, is an increasing separation between entrepreneurs and staff. Entrepreneurs fall into isolation, into burnout and close their companies. Employees on the other hand don`t see a way to participate. That was the driving-force to overtake self-responsibility and to change my professional and personal life"* (Int. 15, companies, april2015). Others worry about the overexploitation of nature and resources and regard it as entrepreneurial duty to save an intact natural and social environment, wherever possible, or to give

something back. Also trust in the ability to transformation is a big motivation. *"I have trust in a fair society, where people cooperate, respect human rights and are responsible, reflective and open to changes in their attitudes and behaviour,"* states one interviewee (Int. 38, companies, may2015).

Strategic economic motivation

A third group of motivation-factors are more strategic, economic arguments. Some regard sustainable economy as mega-trend, driven by well-informed and critical clients, who create a demand for sustainable products and services. That opens successful niches for innovative entrepreneurs and also start-ups in more or less saturated markets. For some, especially producing companies, the startingpoint was a kind of pressure from distributors to provide sustainability-certificates. Others, mostly larger companies, have implemented sustainability as part of their company-strategy over years, integrated in the organigram and well-endowed with personal and financial resources. Last but not least for some financial sources out of European or International Funding Programs were the starting-point.

Implementation of Sustainability driven Entrepreneurship

For the interviewed enterprises sustainability is not just a normative concept but from great relevance for entrepreneurial decisions and concrete implementation in daily business. The table below shows the variety of implemented measures, structured along the dimensions of sustainability. The column "frequency" indicates, how often certain measures were mentioned – not as a quantitative analysis but more to show the importance.

Most interview-partners mentioned ecological measures first, with regard to the differences of sectors and working-contexts. Resources are a big issue for production-firms but also for tourism and gastronomy. Origin of resources gets more and more relevance, as well as efficiency in usage, waste management or new ways of sustainable product-design. Many entrepreneurs have also adapted their internal processes towards environmental standards, in order to keep their ecological food-print as low as possible. Energy is a big issue for both, production- and service-companies, as well as the question of transportation. Social sustainability has high priority as well and is integrated in two ways: firstly, through internal measures for employees and secondly, through support of local or international sociocultural relevant projects. For the interviewed entrepreneurs it is of particular importance to integrate sustainability-values in Human Resource Development. That means to foster participation, genderequality, trans-generational and transcultural co-working. They also regard education and training, especially for new employees, as crucial and offer apprenticeship-programs, vocational trainings or seminars. Good working-conditions, like fair salaries, family-friendly working-hours or health-projects, are further measures to support good, long-term oriented employee-relations. Economic sustainability is linked with long-term viability in a competing world and thus it is seen as one of the biggest challenges. They are convinced that it is not possible to survive without clear management-structures, controlling- and evaluation processes, which may be supported through sustainability-tools, like ECGbalance or Eco Label. Financial independence combined with cost-reduction is considered as crucial as well. Last but not least it is regarded as important to find new, innovative ways to make good practice of sustainability driven entrepreneurship visible in the public.

ECOLOGICAL SUSTAINABILITY		Frequency
Products, resources and services	▪ Use of regional and seasonal resources ▪ Origin-certificates: e.g. fair trade, FSC, Bio-certificates ▪ Efficient usage and reduction of resources ▪ Waste-management ▪ Recycling and upcycling: use recycled materials ▪ Innovation in sust. products & services: eco-design, cradle-to-cradle ▪ New materials: e.g. compounded building-materials	39
Process-management	▪ Environmental standards, like ISO 14.000, EMAS ▪ Innovation and research in sustainable, resource-saving technologies ▪ Lifecycle analysis (LCA): to analyse the environmental impact ▪ Reduction of emissions: CO2-emissions ▪ Reduction of chemicals in production-processes: e.g. herbicides and pesticides in agriculture	25
Energy	▪ Use of renewable energies: solar-power, wind, water; no fossils ▪ Energy-certificates: no nuclear-power ▪ Energy-saving production ▪ Energy neutral building: isolation, heating and cooling-systems, building-materials	19
Transportation	▪ Reduction of transports ▪ Use of public transportation: employees and clients ▪ Support sharing-systems: car-pooling	10
		93

SOCIAL SUSTAINABILITY		Frequency
Human Resources Development	▪ Participation: open dialogue & open space; circle-culture, flat hierarchies; conflict-management, employee suggestion system ▪ Gender-equality ▪ Transgenerational co-working: senior-junior partnering; ▪ Transcultural co-working: open dialogue ▪ Foster relationships: bonding-days, common excursions, celebrations	29
Education/Training	▪ In-house seminars: corporate culture, topics of sustainability ▪ Participation in external seminars & events ▪ Education of apprentices ▪ Training on the job: with supervision & coaching	15
Working Conditions	▪ Faire salary ▪ Employee-contracts, not free-lancing ▪ Work-life-balance: family-friendly working-hours, sabbatical ▪ Health-projects: healthy food, support sports, safety at work	18
Social Responsibility	▪ Provide and secure jobs in the region ▪ Support social and cultural initiatives in the region ▪ Cooperation with international organisations: SOS, Save Tibet ▪ Funding of international development-projects	28
		90

ECONOMIC SUSTAINABILI	Y	Frequency
Strategic management	Long-term business strategies and continuity Sustainability and quality management processes e.g. ECG-balance, ECO-label Integrate evaluation-processes: benchmarking, Sustainability Report	22
Finance-management	Financial independence: from external shareholders, public grants High own equity-capital, no depths Transparency and responsible tax-paying Cost-reduction: efficient use of energy & resources Detailed financial controlling-system	12
Awareness-Building	Support of local economies & innovative ways of communication: living textbook, cyclo-tourism, eco-farming, passive-house Make sustainable pilots visible: e.g. green events, green meetings Public Relation and marketing: story-telling, magazines, social media	5
		39

Table 5: Implementation of sustainability driven entrepreneurship

4.2 Perspective of Universities

Understanding of Sustainable Socio- economic Development

Interview partners underline that the term *Sustainability* is nowadays used more and more in the context of research, in the context of lectures as well as in the public discourse: *"The term sustainability can be find in each research project or lecture. It even dominates the general discussion on socio- economic development. Concerning my work as a researcher, it is a gate opener for the participation of conferences for example. If you mention the term sustainability the whole project becomes a positive connotation"* (Int. 4, universities, may 2015). On the other hand interview partners are also aware of the abuse of the term within university research and underline the necessity to fill it with content, as one interview partner points out: *"The term sustainability is used almost for everything. There is a need to fill it with content in order that also students can work with it"* (Int.2, universities, may 2015). Students know generally the three dimensions of sustainability (social, ecological and economic dimension) but are not able to use it in a proper way: *"Students know it as integrative term, but their interpretations do not go further"* (Int. 18 universities, may 2015). It is therefore necessary to break down the definition of sustainability from a theoretical level to a more practical level in order to make it workable. Furthermore, interview partners describe socio- economic development as a "holistic thinking", which take into consideration not only the economic aspects but also the social aspects of development. Economic activities are general seen as embedded in the life-worlds and in the social contexts and needs of the people themselves. This follows the understanding of an *embedded economy* described by Polanyi (1979).

Role of Universities in Sustainable Socio-economic Development

Universities have a central role in enhancing Education for a Sustainable Socio-Economic Development. As most of the interview partners emphasized, students are entering a very different world from that encountered by their forebears: *"Students are facing a harsh world, which is characterized not only by uncertainty, but also by complexity and rapid change"* (Int. 21, universities, may 2015), manifested through a bewildering array of global issues relating to economic instability, climate change, inequity, loss of biodiversity and migration, to name a few. Never before since the dawn of industrial modernity have the social risks and the threat to people's survival and bases of life through a hostile economic system been as far-reaching as today. Interview partners strengthened the fact, that current global transformation processes imply the necessity for sustainability and socioeconomic development on both, a global and a local level. Not only. As the next quote shows, new approaches have to be found in order to face future challenges: *"In view of the new forms of plunder and expropriation in societies, of the infringements of social, ecological and economic human rights, and the destruction of the natural bases of life, new, integrated approaches are required that encourage local, demand-driven economies in the context of social action"* (Int. 12, universities, may 2015). Following the results of the needs analysis with universities, *"new learning settings are needed, which do not only include universities but different local actors, like local entrepreneurs, farmers"* (Int. 4, universities, may 2015) as one interview partner points out. Interview partners underlined the fact that transformation processes concerning the quality of future depends on a collective capacity and ability to learn and change. Universities, so the interview partners, can enhance this changes through developing informed engagement, agency and empowerment among all affected stakeholders. Particular in collaboration with entrepreneurs, interview partners underlined the necessity of universities to create learning settings that transform not only individuals but also entrepreneurs and communities towards a more sustainable society.

There is consensus in the interviews with universities that local and demand-driven economies are central prerequisites for the independent existence and sustainable development of communities. Shaping social development has to be about more than just securing livelihoods in terms of securing the life bases of those who have become *"dispensable through technological and economic change, but about economic activity as an expression of social and economic action which takes the preservation of the ecological and social bases of life into account"* (Int. 1, universities, may 2015). Economic activity, seen from this perspective, needs to be considered as driven by the requirements of individuals and communities. It is about quality of life, about the fair distribution of the values created, about a selfdetermined life and our relationship with nature.

Research Issues and Themes of lecture

In the interview guide with universities the question was included, which research questions and themes interview partners relate to Sustainable Socio- Economic Development. Regarding the university level, themes related to sustainable socio- economic development are strictly linked to democratization (which also implies a de-hierarchisation) and participation processes in research. Closely to that issue action related approaches as well as interdisciplinary and Transdisciplinary approaches become crucial.

On a content level **four thematic areas** can be differentiated:

1) Sustainable development and landscape (environment)
2) Start- ups/ sustainability driven entrepreneurship 3) Cooperative thinking
4) Sustainable Logistics.

Concerning the first area, research does not focus so much on global issues, but more on localization processes in a de- growth perspective like for example local flows of production and consumption, Local multipliers and Local currencies. Concerning the research area start's up and sustainability driven entrepreneurship interview partners intended the process of re- sharpening start's ups. In particular the question of interest was, how to design and built up new start- ups, activities, companies, which are sustainable on the three dimensions? What are the differences between social entrepreneurs and sustainable entrepreneurs?

In relation to the area cooperative thinking, interview partners focus their research mostly on issues like corporative social responsibility and community based development and social marketing. An important research area is represented by sustainable logistics. In this context issues like Intermodal transport, Smart Urban Logistics, Health Care Logistics become crucial.

Finally there have been mentioned themes and research questions which can be translated in competencies (self- organisation, Solution oriented thinking, Learning between generations, Failure as a change, coming up with new ideas, ability to think and act entrepreneurial/ understand problems, see chances and work on them, provide solutions, How a system is functioning, which is not in danger of resources extinction?) and which are therefore discussed in the next section.

Research approaches	**Action related approach** • Participatory research • To look at practical problems and feed into solutions and change • Democratisation in the research process **Interdisciplinary** • Combining academic disciplines • Crossing boundaries • Challenges and chances **Transdisciplinary** • Holistic research • Specific methods for relating knowledge in problem-solving • Integration of entrepreneurs • Create integrated knowledge • Challenges and obstacles

Sustainable development and landscape (environment)	**Growth society** • Critical review of the growth concept • Growth/ De-growth **Localization** • Local flows of production and consumption • Local multiplicators • Local currencies • Sustainable regional development, Landscape management • Regional development • Community development • Local economic cycles • Value chains **Environmental economics** **Sustainable Development** • Use resources in a sustainable way (strong sustainability), • Sustainable ecosystems • Alternative Economies (Informal economics Organic farming, agriculture; Gardening) • Rural sociology • Reduced and conscious consumption
Start- ups/ sustainability driven entrepreneurship	**Re-sharpening of start-ups** How to design and build up new startups/activities/companies which are sustainable on 3 dimensions?
	• Social vs. sustainable entrepreneurship • Eco-social enterprises • Management • Marketing
Cooperative thinking	**Cooperatives** **Corporate Social responsibility** **Community-based social marketing**
Sustainable Logistics	**Intermodal transport** **Smart Urban Logistics** **Health Care Logistics**
Themes translated in competencies	Self- organisation, Solution oriented thinking Learning between generations, Failure as a change, coming up with new ideas, ability to think and act entrepreneurial/ understand problems, see chances and work on them, provide solutions, How a system is functioning, which is not in danger of resources extinction?

Table 6: Research issues/ themes

4.3 Summary and Discussion

Findings and results

Recent literature does not provide a consistent definition for the term "sustainable socio-economic development". As sustainable development includes always a social dimension – next to economic development and ecology - , both terms seem to be exchangeable. Notably, research dealing with a "sustainable socio-economic development" emphasizes strongly the linkage between sustainability goals and norms, values, life quality or social well-being and analyses the social and economic structures of problems such as "climate change" or "unequal distribution". It examines how social norms, ethics and other social philosophies influence consumer behavior and different perspectives in order to understand social and economic changes in society.

Both, companies and universities, are highly aware of the huge challenges for society, economy and natural environment on a global but also regional level, caused by climate change, demographic changes, migration-movements and globalization-phenomena, acquainted by ever-growing complexity. That calls for integrated, holistic approaches and for comprehensive socio-economic transformation processes, involving various stakeholders from entrepreneurial, societal and educational contexts. Towards this background the need for a new approach for economy on a macro-level and entrepreneurship on a micro level is highlighted, characterized by proactive, solution oriented behavior on the one hand and critical reflections towards short term, just profit and growth oriented developments on the other hand.

Responsibility on an individual, societal and global level seems to be the key motivation to set the normative concepts of sustainability in action. All interview partners act as pioneers and bring along valuable experiences in implementing sustainability issues in their specific working areas: university partners in research and teaching, entrepreneurial partners in different economic sectors.

Relevance for CASE and further research issues

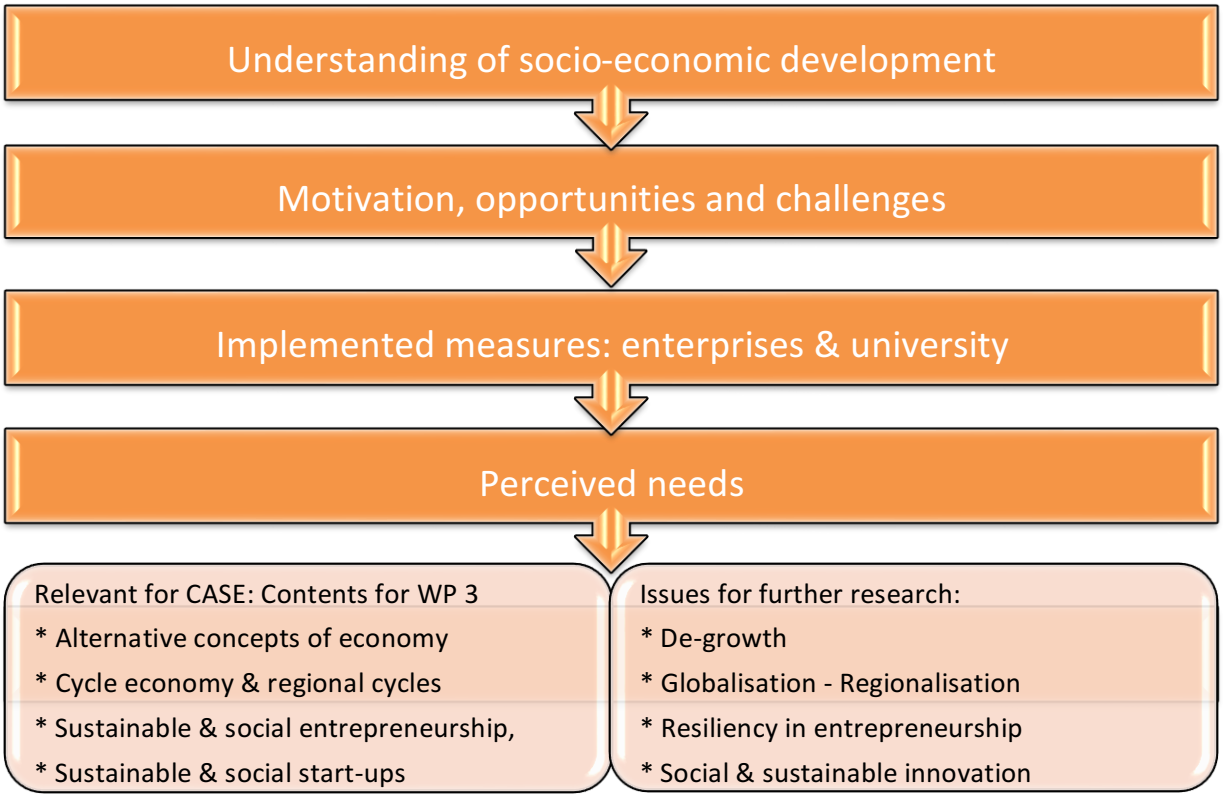
Both, companies and universities, point out issues of high relevance, which could serve as content-pool either for developing modules in the context of CASE, or for programs and seminars beyond the project. Contents of specific interest are: Alternative concepts of economy

Cycle economy and regional cycles
Social and sustainability driven entrepreneurship
Design and set up social and sustainable startups

In addition some further issues were identified, which could be of particular research interest.

- De-growth: The widespread mentality of necessity to growth affects enterprises as well as universities. As such the question of alternative models of de-growth or post-growth is raised.

- Localization and regionalization: the current trend to localization and regionalization is sometimes regarded as panacea for sustainability challenges. This development has to be questioned, especially concerning consequences and impacts on a global level
- Resiliency: Another critical question refers to the opinion that economic prosperity is a precondition for sustainable development. In a world of high instability and latent risk of economic crisis that seems to short thought. Thus it would be interesting to investigate, how sustainability driven entrepreneurship may contribute to a resilient and ant cyclic economy.
- Social and sustainable innovation: The two terms are sometimes used as key words, linked with high expectations on future development and economic profits. It could be fruitful to get the deeper understanding of these terms, connected with a research on good practice.



Graphic 4: Outlook Socio-economic development

5. Competencies for sustainability driven entrepreneurship

Following Rieckmann (2012: 129) competencies are: „individual dispositions of self-organization which include cognitive, affective, volitional and motivational elements". Competencies in terms of "knowledge, skills and attitudes" are not perceived as given facts but have to be understood within its process based character. The following part gives an overview of the outcomes of the interviews with enterprises and universities. The answers were categorized into five competence complexes. The most essential statements are summarized, completed with tables, showing more detailed information.

5.1 Entrepreneurial Perspective

Entrepreneurs answered to the question: Which competencies are necessary for a sustainable socioeconomic development? The column "frequency" in the tables indicates, how often ideas, referring to the different subcategories of competencies, were mentioned. It is not a quantitative analysis; more to give an impression of importance and awareness of competencies in the entrepreneurial context.

Systemic Competencies

Most of the interviewees regard systemic competencies as important. As the world in general and business world in specific become more complex, it seems crucial to develop a different type of thinking than the conventional linear thinking. Holistic thinking and the ability to understand cycles and circular economy seem to provide the necessary mind set for future entrepreneurship. The growing globalisation has more and more impacts on regional and local levels. That calls for knowledge on both levels but also the ability to switch very fast in between. At the same time people are global entrepreneurs and embedded in regional cycles as well. Especially in rural areas a trend to regionalisation can be observed in the last few years: 0 kilometer, local sources – are just some key words. Understanding of interrelations between different environments is also considered as important. Thinking and working interdisciplinary is considered as crucial. But there are also doubts about the term "interdisciplinary", as it is often used just as a theoretical phrase, without practical application in curricula.

SYSTEMIC COMPETENCIES	Frequency

Consider complex structures	▪ Holistic thinking ▪ Cope with complexity; ability to reduce complexity ▪ Be aware of side effects ▪ Not linear thinking; interlink between left and right brain ▪ Understand circles: circular economy ▪ Ability to see and explain the context, cause and effect	16
Consider various scales	▪ Understand global interdependencies: my company and the rest of the world; ▪ Understand global value chains: origin of products & resources, global trade & financial flows Define & ▪ work in regional cycles ▪ Interdependencies of global & regional ▪ Intercultural perspective: understanding of different societal contexts	13
Consider different domains	▪ Understand the interrelation between ecological, social and economic dimension ▪ Interdisciplinary thinking & acting ▪ Integration of men in nature ▪ Bring together various sectors, topics & attitudes ▪ All topics from different perspectives	9
		38

Table 7: Systemic Competencies

Anticipatory Competencies

Anticipatory competencies are seen as important as well, especially the need for long term and transgenerational thinking. Some entrepreneurs, especially in the context of family owned companies, are confronted with the generation thematic in their daily business and regard it as personal duty to build bridges between generations. Long term thinking means for some the active confrontation with uncertainty and risk. Coping with uncertainty in an appropriate way calls for the competence to selfreflection and to reflect sociopolitical and environmental developments. It is important to learn from experiences, also from failures, and use the learnings to create scenarios for a sustainable world. That goes along with the ability to think in potentials and create visions for a sustainable future.

ANTICIPATORY COMPETENC	**ES**	Frequency
Time reference	▪ Intergenerational thinking: responsibility for future generation; ability to transgenerational co-working in companies ▪ Develop farsightedness ▪ Long term thinking and planning	9

Cope with uncertainty	▪ Risk awareness: courage to take a risk; not always choose the easy way; ▪ Reflection: ability to reflect and benefit from experience; flexibility to start new	3
Consider capabilities	▪ Perceive and develop capabilities ▪ Ability to monitor global trends and deduce decisions ▪ Visionary thinking	5
		17

Table 8 : Anticipatory Competencies

Normative Competencies

For most of the interviewed persons a specific concept of ethics is the basis for humanity and sustainability driven entrepreneurship in specific. Ethics means for them a certain set of values, which helps to make every day`s decisions in favour of sustainability. It is regarded as a kind of axis, which allows developing the competence to distinguish between alternatives and act autonomously in critical situations of dilemmas and contradictions. As external behaviour is inspired and caused through internal mind sets, self-esteem, inner balance and awareness of meaning are considered as crucial. As such any external transformation towards sustainability must be prepared internally. That means an intensive work on values but on emotions as well, as they are the driving forces for actions.

NORMATIVE COMPETENCIES		Frequency
Concept of ethics & values	▪ Act along a concept of basic values: responsibility for people and environment respect towards all creatures honesty & trust transparency in business ▪ Implement economical ethics and values of ECG ▪ Work against egoism in society ▪ Develop a specific attitude of people: alternative to the concept of homo-oeconomicus	14
Intrapersonal competencies	▪ Inner autonomy & self esteem ▪ Being in inner balance as precondition for external balance ▪ Get in your innermost ▪ Awareness of meaning: for yourself and for others ▪ Spirituality	10
Work with emotions	▪ Ability to enthusiasm ▪ Sensitivity ▪ Work with fears; develop courage	8
Deal with contradictions & dilemmas	▪ Ability to distinguish between alternatives ▪ Ability to make decision, also against the mainstream ▪ Independency in thinking and acting ▪ Ability to perseverance & persistence	6

		38

Table 9: Normative Competencies

Strategic Competencies

Strategic competencies are crucial for entrepreneurship in general. In complex and rapidly changing economic environments they become even more important. This fact is reflected in the interviews. Strategic competencies are regarded as bundle of skills that includes the ability to recognize and analyse problems, see new opportunities and possible solutions and to bring ideas and solutions "down to earth". Innovation is regarded as key competence either, as many European SMEs face harsh international competition and secure their survival through building up innovative niches.

For daily work the typical strategic skills are vital, which do not differ so much from conventional business: create a corporate philosophy and work along a well contracted organisation model, set up milestones and controlling processes. Establishing a learning culture in the company is also seen as important. That means to establish reflection and evaluation processes, what calls for certain skills to transform failure but also success into learning and to bridge with experiences from others and theoretical concepts. Management competencies and know-how about daily working-routines were also mentioned quite often: *"You have to know your organisation quite well, unless you can change it"*, is the opinion of one entrepreneur (Int. 26, companies, march2015). Therefore project- and process management are regarded as key competencies, as well as controlling of success and real costs, caused by sustainability activities.

STRATEGIC COMPETENCIES		Frequency
Openness for possibilities	Think in terms of solutions, not just in terms of problems Openness: to new opportunities; awareness of unsustainable features of economy Flexibility: to react very fast on opportunities Research: ability to raise questions; scientific curiosity Specialisation versus generalisation	16
Innovative thinking	Innovative & creative thinking Out of the box–thinking: ability to read between the lines, break patterns Demand–orientation: see the needs and find solutions	10
Strategic acting	Create and live corporate philosophy and guidelines Being able to develop organisation models, suitable for the context Goal and success-orientation: never on the back of the weaker ones, being able to control the success Implementation: ability to implement consequently; combine sustainability strategies with daily business Bridge practical abilities and theoretical background Culture of failures & learning Evaluation: ability to evaluate processes & take consequences	16

Management competencies	Project Management: take into account specific needs of different project stages; Process Management: most difficult points are most fruitful for organisational development Change Management Controlling: overview of real costs; benchmarking; comparison between sustainable and traditional economy; making soft criteria measurable Understanding of technical processes	17
		59

Table 10: Strategic Competencies

Interpersonal Competencies

Interpersonal competencies seem to be most important for sustainable socio-economic development. More than one third of the answers refer to that category of competencies and every interview partner contributes with two statements on average. The analysis reveals that transformation towards sustainability driven entrepreneurship is not a mechanistic process but very much a matter of dialogue and interpersonal relations. That calls for a set of social competencies to shape internal and external relations in an appropriate way. The ability to work in networks, especially to work in multi-stakeholder networks, is regarded as crucial. It seems to be a clear mandate to develop strategic educational programs to foster understanding and handling of diversity in multi-stakeholder networks. The ability to work within a team has also high priority, as team solutions seem to encounter the growing complexity of entrepreneurial environments better than single solutions. That calls for a new type of leadership as well, which includes the ability to compose teams, to evoke enthusiasm and to foster self-responsibility. Not really surprising is the high importance of communication skills. Being able to lead dialogues and discourses on different levels is regarded as key competence. That goes far beyond applying communication techniques.

INTERPERSONAL COMPETENCIES		Frequency
Work in networks	Ability to build up and sustain networks Building up empathic relations to suppliers, clients, employees; Coping with diversity: multi-stakeholder networks; building bridges; bring the "right" people together; involve the public Intercultural networks & management Have clear, where people stand and retrieve them from there Thinking in cooperation, not in competition Sharing knowledge, also on a global level (we have more knowledge than ever; without sharing it, it`s worthless)	23

Teamwork		Ability to set up and work in teams; team competencies are more important than single ones Cope with group dynamics Foster the group intelligence: the whole is more than the sum of elements; work = team play Ability to participate; systemic consent Not only co-working but live together	22
Leadership		Everyone on his/her place; see and foster potentials; ability to find the talents Delegation: confidence in employees Ability to compose teams Circle culture: "a leader in every chair";	13
Communication skills		Ability to dialogue & discourses; Facilitation skills: to handle different perspectives; to handle public hearings Ability to listen Training & teaching skills Rhetorical skills: to convince; to make a position clear; Communicate sustainability in the right way: storytelling; emotions in the beginning – scientific arguments later on; presentation skills	32
			90

Table 11: Interpersonal competencies

5.2 Perspective of Universities

In the interview guide three questions were linked to key competencies for sustainability driven entrepreneurship:

1. What are the general key competencies for sustainability driven entrepreneurship?
2. Which key competencies for sustainability driven entrepreneurship students should acquire?
3. Which key competencies for sustainability driven entrepreneurship are important in the collaboration between universities and entrepreneurs?

Regarding the first question of the interview guide concerning the key competencies for sustainability (general overview of key competencies for SE), interview partners link the systemic competence with a holistic thinking, the ability to deal with complexity (to understand possibilities, necessities, bottom up processes, territorial specific contexts and institutional structures where the initiatives take place). The systemic competence has also been linked to the ability to think in a reflexive way, intending a reflexive perspective concerning the own role in society.

Taking into account the anticipatory competence defined by Wiek et al. (2011), interview partners interpret it as a future oriented thinking (To show understanding for acting in a sustainable, future oriented way). Whereas with the strategic key competence interview partners intend transdisciplinary skills (to be able to connect academic and practical knowledge, to value practical knowledge) and solution

oriented thinking (act and react proactive towards societal problems in any discipline and create solution for it). Within the general overview of key competencies, interview partners underline also the interpersonal skills, which are important for sustainability driven entrepreneurship. More precisely, they intent the ability to act within interdisciplinary contexts, (to understand other disciplines, to know the own discipline) and the capacity to deal with experiences of frustration and failure (being able to deal with conflict situation).

Taking into account the second question (key competencies for SE students should acquire), all five key competencies indicated by Wiek et al. (2011) became important. With systemic competence interview partners intended, as stated above, a reflexive thinking and to become critical regarding SE issues (thinking outside the box) as well as to deal with contradictions. As anticipatory competence interview- partners refer to long term thinking (To understand and to handle with future challenges).

With normative competencies interview partners expressed the intention to transform the status quo, to understand terms and fill them with content (example sustainability) and the ability to understand the (ethic, environmental, economic) consequences of acting. Important in this context are also the strategic competencies, which the interview partners link to mediation and facilitation skills. Important for students are furthermore interpersonal competencies like acting in an interdisciplinary context as well as acting in an intuitive and creative way.
Concerning the cooperation with entrepreneurs and local actors strategic competencies become crucial. With this key competence the interview partners link the ability to recognize partners on a local and international level, to have the Know How in order to connect praxis and science, to bundle forces and the ability to be able to transfer (of knowledge) between project partners and students and to be able to translate interest (same language). Within the key competencies mentioned above interview partners also refers to basic competencies, which are important to be linked with the key competencies for sustainability. The table below sums up key competencies for sustainability driven entrepreneurship regarding the three questions, which are considered important, by the interview partners from universities.

SYSTEMIC COMPETENCIES	1. Holistic thinking 2. Dealing with complexity (to understand possibilities, necessities, bottom up processes, territorial specific contexts and institutional structures where the initiatives take place: for example Knowledge of municipalities and local politics) 3. Reflexive Thinking/ Becoming critical regarding SE issues (thinking outside the box)
ANTICIPATORY COMPTENCIES	4. Future oriented thinking (To show understanding for acting in a sustainable, future oriented way)= Long term thinking (To understand and to handle with future challenges) 5. To understand the (ethic, environmental, economic) consequences of acting
NORMATIVE COMPETENCIES	6. To have the intention to transform the status quo 7. To understand terms and fill them with content (example sustainability) 8. To deal with contradictions

STRATEGIC COMPETENCIES	9. Transdisciplinary competence (to be able to connect academic and practical knowledge, to value practical knowledge) 10. Solution oriented thinking (act and react proactive towards societal problems in any discipline and create solution for it) (needs to catch up in terms of how to allocate resources as a state/political leaders/leadership, as a university/ self-perception as university) 11. Intentionality 12. Know How in order to connect praxis and science (To have an intuition for what is needed in the praxis) 13. To recognize partners on a local and international level 14. To bundle forces 15. To be able to transfer (of knowledge) between project partners and students 16. To be able to translate interest (same language) 17. Entrepreneurial skills (how to set up a business; how to make a budget plan; knowledge of accounting; how to get a credit from a bank; or where else to get the money from (practical skills); Soft skills: how to lead people, how to be a good manager, how to make people enthusiastic about their plan, Crowd funding)
INTERPERSONAL COMPETENCIES	15 To handle constructively with experiences of frustration and failure (being able to deal with conflict situation), 16 Interdisciplinary/ (the ability to interact in interdisciplinary contexts, to understand other disciplines, to know the own discipline =to have disciplinary knowledge 17 To interact in an trans generational context 18 The ability to cooperate within a multi-stakeholder network 19 The ability to work in teams 20 Mediation and facilitation skills (Organizational skills (moderate interdisciplinary groups), to develop a business plan, argumentation skills (to present and „sell“ an idea/ defend position), communicative competencies

Table 12: Competencies, Universities.

5.3 Summary and Discussion

Findings and results

Both, interview partners from universities and enterprises agree that the grand sustainability challenges call for a specific bundle of competencies that they define with very similar sub competencies. Both point out the need for a holistic thinking that includes various levels and domains, in order to encounter the growing complexity. Following Lans et al. (2014, 43), dealing with complexity is also a key competence for sustainability driven entrepreneurship, as well as being innovative and creative (“the importance of novelty and creativity”), self- involvement, to combine exploration and exploitation and interpersonal competence (“the importance of engagement with significant others”). Moreover, the interview partners also agree that long term and trans generational thinking are important. The need to deal with risk and uncertainty was emphasized mainly by enterprises, because of the direct confrontation in daily business.

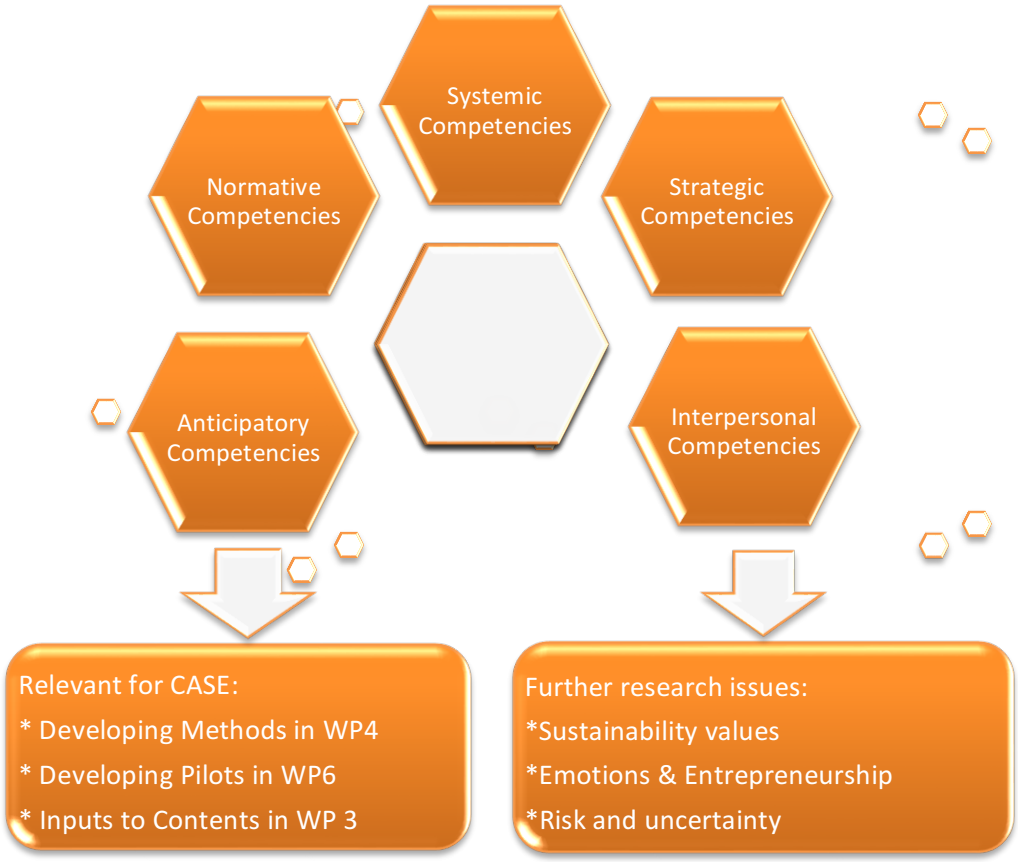
Also the need for ethical competencies and the orientation along an axis of clear defined sustainability values was expressed by enterprises, as they usually have clearer structured normative concepts, obtaining for the whole organization. Solution oriented and innovative thinking are regarded as strategic key competencies from both sides, as well as management competencies (intended as translation of ideas into entrepreneurial realities). Lans et al. (2014) underline that there are significant differences between competencies for sustainability and competencies for entrepreneurship, as for example "the individual self- interest to excel in entrepreneurship competence can be contrasted with more collective/ societal aspirations in sustainable development competence". Furthermore, enterprises mentioned the need for specific research skills and in turn universities the need for specific entrepreneurial skills. This could be linked to a reciprocal learning processes. There is also a common understanding concerning the importance of interpersonal competencies: to set up and work in multidisciplinary teams and networks and to gain appropriate skills for internal and external communication.

Relevance for CASE and further research issues

The interviews provide valuable information for developing curricula, also beyond the CASE project. In the project the key competencies are of high importance, concerning WP 4, as in this work package specific methods are developed. There is also a linkage to WP 6, where pilots are going to be tested and evaluated. Furthermore, the research about competencies may also give an input for development of contents: Systemic and holistic approaches Communication and dialogue competence
Practical entrepreneurial skills

In addition some further issues were identified, which could be of particular research interest

- Values: The interview partners stress that external decisions are based on the ground of internal attitudes and mind sets. Therefore deeper research on values could be of particular interest: Do specific sustainability values exist? How might they be transferred to practice?
- Emotions: Are a quite important driving-force but especially in entrepreneurial contexts often underestimated. It could be a fruitful research-work to investigate cause and effects of emotions in the context of sustainability driven entrepreneurship.
- Risk and uncertainty: A third research topic could refer to the issue of risk and uncertainty, connected with trend and scenario research. Which impact could global trends have on a local but also individual level? What are appropriate strategies to cope with uncertainty? How to change a thread into an opportunity?



Graphic 6: Competencies for Socio- economic development.

6. Gaining Competencies

Following Paulo Freire (1972: 22), who has fundamentally influenced Mezirows thinking, it is the interaction of reflection and social action which allows people to become aware of, understand, and act on their collective reality, and that neither one nor the other has sufficient transformative power by itself. This chapter contains the most relevant statements from enterprises and universities towards ways and methods of gaining competencies for sustainable socio-economic development.

6.1 Entrepreneurial Perspective

The leading question of the interviews was: How can competencies for sustainable development be gained? What are learning lines and which are relevant learning partners?

The interview partners agree that developing competencies for sustainability must be a continuous, livelong learning process, following the criteria of ESD (Definition of UNESCO 2005). It is important to interlink formal and informal learning possibilities and regard education as a responsibility of the whole society. Nevertheless certain learning lines are identified where sustainability issues have or should have a more strategic position:

In School Education

The earlier, the better and thus education towards sustainability should start in early childhood. Family members function as role models and have great influence on developing basic values. Later on the kindergarten or school provide the social setting for deepening values. Especially schools could fulfil a mission in ESD. Until now efforts in this direction are more the exception than the norm. Schools should provide occasions to develop basic values and social competencies but also teach love and responsibility for nature and people, as an entrepreneur points out. "*If we just add further skills, competencies and subjects to the current curricula, we don´t achieve a transformation. It is necessary to radically change the education model towards a scenario, where children don`t lose pleasure for learning and keep the natural curiosity for their environment"* (Int. 13, companies, april2015).

In higher school education students should get in contact with the different dimensions of sustainability and develop a kind of sustainability literacy. It is regarded as crucial that already pupils are prepared to interdisciplinary thinking and bridging theory with practical experiences.

Internships, collaboration projects with companies, studies abroad, etc. should be a compulsory element of higher school education. It is obvious that expectations on schools and teachers are huge as they fulfil more and more education responsibilities, which were taken by families in former days. Therefore it is necessary to redefine the role of teachers and to rethink teacher education as well.

In Academic Education

Most of the interview partners ascribe universities a central role in fostering sustainability driven entrepreneurship, as universities educate the decision makers of tomorrow, who will overtake strategic positions in enterprises, politics and research in future. Thus sustainability issues should tackle all disciplines – either as compulsory basic course for all students or integrated and adapted to the specific curricula of the single disciplines. *"Every discipline should start a process of awareness building: Pedagogy could think about, how a new learning culture should look like; Business Administration should open the dialogue about sustainable entrepreneurship; Natural Sciences should extend efforts in sustainable solutions for resource efficiency and energy"*, one interview-partner reveals her vision (Int. 17, companies,

april2015). At least in Economy or Business-studies sustainability should get more attention on both, a macro and micro level. Also fostering entrepreneurial skills, not only in Businessstudies, is regarded as important, as the future calls for innovative, self-responsible and entrepreneurial thinking graduates in every discipline.

Some criticize that students are not well prepared for real-life through the current curricula. Students are still overwhelmed with theoretical knowledge, which is not connected with practical application. In many cases these critics are justified but academic realities are changing and many universities provide excellent experience oriented teaching-programs in the meanwhile. Regarding academic education the interviews show two clear needs: Firstly, to intensify the university-business collaboration in order to bridge the noticed theory practice gap; secondly, to improve the communication and spread goodpractices of innovative teaching programs into the business world.

In practical Work and Vocational Trainings

Working experiences are still regarded as most effective way to develop sustainability skills. The interviewed entrepreneurs feel responsible for providing a working environment, where ethical and sustainable behaviour is high appreciated. That means sustainability-skills have to be high up in the priorities of the company and have to be lived in an authentic way. *"For me crooked CVs are interesting, as they sometimes reveal more information about social, emotional, cultural and communicative skills as formal qualifications"*, one entrepreneur points out (Int. 30, companies, may2015). The entrepreneur and the managerial staff have a specific responsibility to act as role models and give an example for the employees. It is considered as crucial to foster an open culture of dialogue and collaboration in the company. All known measures of Human Resource Development can support in developing this kind of culture.
Some have established an Employee Suggestion System with a specific focus on sustainability, others conduct employer surveys or appraisal interviews to better include employees in transformationprocesses. An interesting instrument of employee participation is the ECG-balance process. In some ECG-companies the whole staff is involved in working out the balance sheet, in other companies just the department-leaders work on specific criteria. The main-aim is to create an atmosphere of selfresponsibility and participation.

For some interview-partners trainings and workshops are of high importance in order to give impulses for socio-emotional skills as well as for sustainability issues. The variety of formats and methods is high, from in-house seminars to outdoor-nature camps to expert-lectures. But most interviewees stress that the crucial success factor is continuity, to build up long-lasting learning-lines and to connect theoretical inputs with practical experiences. Therefore in some regions an extended offer for trainings-programs, either as seminar-series or as advanced study courses would be highly appreciated.

6.2 Perspective of Universities

Interdisciplinary/ Transdisciplinary Approach within Organizational settings

Transdisciplinary processes represent a *"new collaboration among science and society which is able to emphasize joint problem definition, and knowledge integration"* (Int. 8, universities, may 2015). As the interview partners underline, the emergence of modes of science (see *Mode 2 science*, Nowotny) on the one hand, and the growing need to deal with sustainability problems on the other hand, makes a transdisciplinary approach (including and integrating also mono and interdisciplinary work) necessary for sustainability research that deals with complex, ambiguous, real-world problems and aims at producing robust and practice oriented knowledge.

Nevertheless the chance and new research potential of interdisciplinary and transdisciplinary approaches, interview partners emphasize also big challenges concerning its implementation in daily life. Here the collaboration between faculties and different disciplines is perceived as provoking. The challenges are linked to the „power of definitions" (…) and "different interests" (Int. 15, universities, may 2015). Consequently the collaboration is often linked to (power) questions like: Who has more resources? Which faculty has a more powerful position in society etc. This challenges become crucial especially for interview partners, which represented social science, arts or philosophy. In the interviews these faculties are perceived as having an inferior position in society and within the university (in contrast to natural science and economic science for example). Moreover although the high level of interest for interdisciplinary collaboration, interview partners underline the lack of time, administrative obstacles and concrete places where the different actors can meet. Concerning the partner city Brno also the financial support for supporting initiatives is a big issue. Another challenge the interview partners faced were institutional and academic obstacles, which not always allow an interdisciplinary or transdisciplinary approach. This has to do with an old traditional disciplinary organisation of most universities (mostly Mode 1 research and less Mode 2 research). Especially regarding some regions (Czech Republic and Italy), interviews were often characterized by a hindering institutional frame structure. In this context, promoting interdisciplinary and transdisciplinary research and teaching is based very much on the self- organisation of single professors or lectures. They are entrepreneurs and pioneers themselves in going new ways within traditional structures. Consequentely also promoting SE in already existing study programs is often linked to an élite group within universities. General interest which includes a whole university is difficult to find ("not many people interested"). As most of the interview partners emphasized, it is quite difficult to integrate SE issues in already defined study programs. In most cases, themes and topics are fixed and there are less possibilities to introduce new ones. Fewer difficulties they see in integrating new topics in MA or PhD programmes, where the transfer of content based knowledge is not centre staged. Interview partners also underlined the difficulty that sustainability as a crosscutting issue is often hard to tackle and implement at universities.

What is needed on a meso level:

- appropriate formats, which connect study programs (bachelor)
- faculties and disciplines

- a systemic linking between traditional disciplines with sustainability
- a culture of innovation
- Furthermore interview partners claim more visibility from university in society through public initiatives
- recognition as a player in society, cooperation between university and society, recognition from mainstream economy.

Interview partners demand:

- spaces of opportunities or/ and negotiation spaces (mental space), where the integration of practical and theoretical knowledge as well as reflective studies (research) is centre staged
- Space should be provided at universities to tackle issues on sustainable development and sustainability driven entrepreneurship. In some cases interview partners also requested more
- money to support teaching initiatives in order to prevent lecturers to work for such programs on weekends/in their free time/only as a personal pleasure “More money for the organizations to compensate them for the research and internship activities”)
- concrete actions: Master program/module creation intended via CASE is perceived to have quite beneficial for such attempts

Methods

In order to teach the key competencies for sustainability driven entrepreneurship there is the general assumption, that the simple knowledge transfer has less priority. In the interviews, more importance was given to methods, which allow students to co-create knowledge and to practice theoretical knowledge. Furthermore methods should allow students to learn in an introspective and reflexive perspective. It becomes crucial to create learning settings, where an understanding of how the economic, social, cultural and political contexts in which we live are shaping our thinking and acting is promoted. In such learning contexts the role of the teachers differs from traditional university learning settings. The teachers support, inspire and coach the students. The students, on the other hand, become active co-creator of their own knowledge. Together with different stakeholders students work beyond traditional boundaries. It requires that different institutions, organizations or activity systems collaborate and identify challenges and problems in a given context, whereby the participants through dialogue and negotiations come up with a common vision and transformative action.

6.3 Summary and Discussion

Findings and results

For our interview partners gaining competencies for a sustainable socio-economic development is considered as a lifelong learning process, supported through appropriate learning settings and innovative methods, which provide pleasure and evoke curiosity. It should start in early childhood, in the families as well as in primary schools, where the basic values of sustainability should be taught, complemented with basic sustainability knowledge in higher schools. Later on universities take an essential role, as they educate the decision makers of tomorrow. Enterprises see a big need for integration of sustainability issues in all disciplines, especially in Business-Studies. For both, enterprises and universities, inter- and transdisciplinary formats of study and research are of utmost importance. As disciplinary analysis quickly reach their limits, research and practice for sustainability require comprehensive and integrated approaches (Jahn, 2001; Elsen, 2013; Schneidewind & Singer-Brodowsky, 2013), interview partners underlined the importance in promoting interdisciplinary and transdisciplinary research within universities. As Vincent Blok (2014) points out, “not only traditional lecturing in entrepreneurship education has been proved to be insufficient, also educating for sustainable development requires different teaching methods in which real-life experience with sustainability problems is one of the core aspects”.

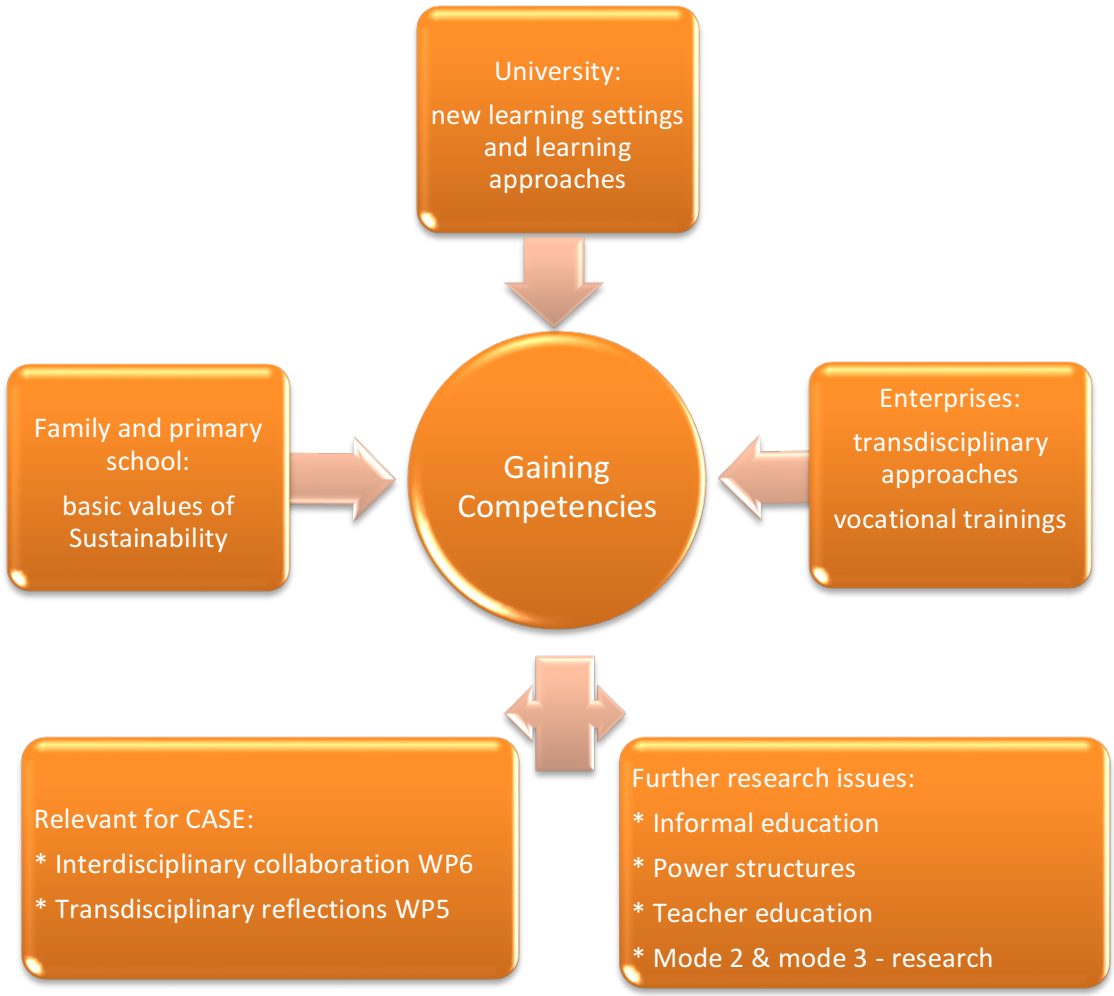
Relevance for CASE and further research issues

The findings are of high importance for the development of WP 6, where interdisciplinary collaboration between different universities, faculties and institutes is center staged. Interview partners call for a careful preparation, where the internal university structures, legal regulations and matters of powers have to be taken into account, as well as challenges in finding a common language. The findings are also of value for WP 5, which focuses on transdisciplinary projects with business partners. Beyond the project the interviews also reveal a defined need to rethink the teacher education as well as a need for qualified vocational trainings for enterprises.

In addition some further issues were identified, which could be of particular research interest

- Informal education: Beside the formal path of gaining competencies, interview partners point out the importance of informal learning through travelling, voluntary work or internships. That leads to an interesting research question of ESD: How can these competencies be evaluated, beyond formal certificates? How can they be made visible, also in CVs?
- Structures of power: The question of formal and informal structures of power in larger organizations (universities as well as enterprises) lead to another research topic: How do powerstructures influence transformation processes in organizations?

- Mode 1 and Mode 2 Science: Which institutional challenges are linked to pass from a more hierarchical, disciplinary oriented research approach (Mode 1) to a more democratic, transdisciplinary research approach (Mode 2)?
- Teacher education: Changes in learning environments, in methods and contents leads also to changes in the role of teachers, concerning schools, as well as universities or vocational trainings. That raises the question, how an appropriate teacher education should look like?



Graphic 7: Gaining competencies: enterprises and universities perspectives.

7. Learning in Multi-Stakeholder Networks

Following Fullan (2012:17) new partnerships between Entrepreneurs and Universities are one possible way to transformative education. In the following the main results of the interviews with companies and universities are summed up. Besides key criteria for success or failure of networks we put the focus on concrete opportunities for university - business collaboration.

7.1 Entrepreneurial perspective

Role and Impact of Multi-Stakeholder Networks

The role of networks is considered as essential, not only for sustainability driven entrepreneurship but for economy as a whole. 40 of 48 entrepreneurs ascribe networks huge impacts on sustainable socioeconomic development on a macro level, but also for their own company.

Learning and innovation
Networks are regarded as learning platforms for exchange of knowledge and experience. Confidential relations make it possible to get deeper insights in good practices, raise critical questions and shape a learning culture where failures and mistakes are valuable learning sources. Through networks new perspectives are opened as a source for innovation. Especially for sustainability driven entrepreneurship it is of utmost importance to work in cross-sectorial networks to get impulses and views from different contexts. *"Only in networks you can meet the requirements of the complexity of sustainability and create corresponding synergies",* is the opinion of one entrepreneur (Int. 32, companies, may2015).

Effective and efficient work
In sharing resources and splitting complex tasks, networks multiply efficiency and effectiveness of singular efforts. Smaller companies, organised as networks, achieve economies of scale, which go along with a certain power towards suppliers and customers. This is an interesting aspect, as most of the sustainable enterprises, especially start-ups, are SME. In the long run networks may even define and execute common sustainability standards. *"It is easier to maintain a standard in cooperation, as it is with tailwinds",* one interview partner says (Int. 29, companies, april2015).

Political power
Joined forces in a common topic may also reach the political level and influence political decisions. It is the aim of some interviewees to create a kind of lobby for sustainability issues as counterpart to traditional industrial lobbies. Sustainable development shouldn`t be a business model only and not be reduced to a

small group of pioneers but become a broad societal movement, involving various stakeholders from society, economy and politics.

Success and restraining Factors for Multi-Stakeholder Networks

Objective-oriented

In order to establish successful networks it is crucial that all partners share a common vision and common values. It is important to put societal relevant issues in the centre, which create long term meaning for all participants. Multi-stakeholder networks should aim on integrating most different perspectives, critical and lateral thinking persons, in order to complement each other, not to repeat well-known points of view. As such it is crucial to involve external, also international experts from time to time. Moreover it seems a success criterion, to create win-win situations and provide benefits for all. The lack of clear aims and purposes of networks is regarded as obstacle. Especially if big plans and visions are defined and no or just weak actions follow. It is considered as exhausting to spend plenty of time in meetings without concrete, objective oriented actions. Also superficiality and fuzzy work destroy networks. Diversity is regarded as advantage, but conflicting interests and too outstanding positions can create barriers, which can be hardly overcome. Some also take into account that not all issues are predestined for networks and that it is essential to sort out the relevant ones.

Relation oriented

A balance of give and take characterizes good collaboration. That calls for a careful search to find the right partner for each task. It also calls for common values like confidence, reliability and responsibility for the common. Frequently personal contacts, transparency and openness in communication are regarded as further key success factors. If stakeholders with different backgrounds and "languages" collaborate, it is regarded as crucial to take enough time for defining meanings of terms and concepts and for developing a kind of translation competence.

Working in networks is to find a balance between individual and network-interests as well. Competition thinking and pushing just own interests tear networks apart, as well as strong expectations of short-term economic success. A lack of discussion culture and the ability to dialogue lead to gaps, impossible to bridge.

Organisation-oriented

A clear organisational-frame from beginning on is regarded as base of good networking. That means to have clear rules, shared duties and clear consequences, if duties are not fulfilled. Well-defined evaluation and controlling processes help to comply with milestones, achieve goals and initiate changes, if necessary. Furthermore the availability of resources is highlighted, meaning time as well as money. In this context the specific role of the network coordinator is pointed out. *"Activities have to be centred in a focal point. That means you need a network coordinator, who manages the daily business and is paid for just doing this job."* (Int. 10, companies, april2015)

Time is considered as most limiting factor. As sustainability issues are often not the core business of companies but a matter of heart, they are shifted to leisure time and affect the work life balance of entrepreneurs, what leads to exhaustion in the long run. Also the lack of other resources, like money, endangers the long term existence of networks. *"In sustainability networks we have a higher than average*

amount of volunteer work. But too much is contra productive, as it distorts priorities and real value of networks." (Int. 14, companies, april2015)

Networks also suffer from lacks of clarity in roles and obligations. And last but not least, size of groups has an impact on the quality of the outcomes. If groups are too big and too heterogeneous it is hard to come to a common point.

Involvement in Multi-Stakeholder Networks

Business networks

Business cooperation has high priority for the interviewed enterprises. 39 of 48 are actively engaged in networks with other companies and business partners. Some are involved in typical sectorial networks, like sector clusters or associations, which mostly have not a specific sustainability focus. Especially associations, like the Association for Farmers, Association for Hotels, but also the Chamber of Commerce, could play a specific role as multipliers. Firstly, because they have a wide coverage as membership is compulsory in some countries. Secondly, because they often have political power to raise specific topics in the public. Thirdly, they engage in current socio-economic developments more and more, as far these developments tackle interests of their members.

Beside the sectorial networks most interview partners are also active in supplier networks. Both those, who work on a regional, and those, who work on a global level, are partly directly connected with producers and have deep insights in origin of resources and conditions of production. *"It is my vision to change towards local producers as far as possible. But as we use over 4.000 articles, it is a step by step process, where you can`t change everything overnight. Sometimes it is also not easy to break longlasting supplier relations, just because they don`t produce in a sustainable way"*, tells an entrepreneur out of his experience (Int. 27, companies, april2015).

Trans-sectorial networks are regarded as most interesting and most inspiring form of business cooperation, especially those, who put the focus on sustainability issues, like the RespAct-network in Austria, the ECG-network in Italy, GRI-network or Global Compact on an international level. 23 of the interview-partners are already involved in cross sectorial partnerships and further eight have a very concrete interest to join. *"We are an alien in our sector, hence cooperation on a professional level in the region doesn`t make much sense. But we are highly interested in cross-sectorial collaboration in sustainability issues"*, points out one entrepreneur (Int. 12, companies, april2015).

University – Business Cooperation

Fostering university-business cooperation has become a big issue for innovation and research policy over the last decades. This development is also reflected in the interviews, even if enterprises are involved in cooperation with universities in different grades of intensity. 14 entrepreneurs say that they have a strong and clear defined partnership with one or more universities. They are involved in research projects, expert groups or even in teaching modules.

16 entrepreneurs are bounded with university through single activities, but not frequently. For example, they are invited to give expert lectures at university, support master thesis or conduct surveys together with students. Most of them are convinced of the added value but think that it is important to put the partnership on a more strategic level. Nine of the interviewees have collaborated with universities, but only through single actions, like student interviews, short internships or excursions. The experiences with

students are mixed, as the following statement of an entrepreneur shows: *"On the one hand the students brought in fantastic, new ideas, but on the other hand they sometimes were so fare from reality, with little sense for costs or applicability. It would be desirable that students are better equipped for practice, especially with very normal values, like politeness or reliability"* (Int. 14, companies, april2015). Six interviewees haven`t worked with universities until now but have strong interest, particular in sustainability issues. Only one interview partner does not want to cooperate with university as he regards his business as too far away from an academic level.

Outline for University-Business Collaboration

Most of the interview partners have a strong interest in either intensifying or setting up collaboration with universities. As such they formulate a very concrete interest in research results of global and regional sustainability developments, providing good arguments for acting as sustainable entrepreneur. Depending on region and economic sector, as the table below shows, they formulate specific topics, where they need more scientific grounded knowledge about sustainable alternatives, e.g. for energy, agriculture or tourism. They also expect higher acceptance in society and political relevance for sustainability driven entrepreneurship, if universities and entrepreneurs complement each other and create a strong network. Regarding methods, entrepreneurs have some ideas, but are open to new and innovative tools as well, if they support fruitful theory practice interfaces. In general methods are regarded as key competence of universities.

REGION	CONTENTS & TOPICS	METHODS & FORMATS
Vienna	On a macro level: • Society – university interface • Sustainability driven Entrepreneurship On a micro level: • Marketing issues: social media, online networking • Financing of sustainability: e.g. crowdfunding Discipline oriented: • Energy: efficiency, renewables, buildings • Mobility: multi-modal mobility • Usage of space: multi-functionality	• Events open to public: e.g. Sustainability Day • Excursions to companies • Service Learning projects with companies • Master-theses with companies • Employee-training at university • Co-creating of university-courses • Common research-projects • Intrapreneurship: within university

Bolzano	On a macro level: • Alternative concepts of economy • Global finance systems: backgrounds • Regional cycles • Ethics: sustainability values in society • Social behaviour: healthy and sick egoism? On a micro level: • Ethical Marketing Discipline oriented: • Food: origin, value chains, certificates • Agriculture: regional cycles, organic alternatives • Tourism: sustainable alternatives • Biodiversity: research as basis for saving	• Dialogues: science business talks • Case studies: university reflect on bench-marks • Internship: ½ year and internal guided • Cooperation-projects: e.g. analyse of company • Master course: with involvement of companies • Research projects: scientific background for specific enterprises, arguments for sustainability • Partnerships with international universities • Strategic process of collaboration
Vechta	On a micro level: • Sustainability Reporting Discipline oriented: • Mobility • Organic agriculture	• Seminars: topics proposed by LB • Thesis: topics proposed by LB • Internship: ½ year, structured by student`s own ideas • Project seminars: 1 semester just for project work
Brno	On a micro level: • Business competence • Educational competence	• University events: provide space & background • Internship for students • Course for academics: for teachers and in service lectures • Strategic framework of collaboration
Gothenburg	On a macro level: • Circular economy • Basics of sustainability: for all disciplines Discipline oriented: • Agriculture: alternative organisation forms	• Best practice • Case studies • Lectures from external business man • Internship • International exchange: study abroad

Table 13: University –Business Collaboration

7.2 Perspective of Universities

Interview partners defined challenges in contexts where Service Learning projects exists (WU Vienna): *"Projects with a social/sustainable entrepreneurship aspect have to be prepared differently than classical tech entrepreneur projects"* (Int. 20, universities, may2015). The challenge is furthermore to communicate and translate specifics of various themes/aspects of entrepreneurship in a good way (vertical and horizontal communication). As some interview partners claim, an accurate narrative is needed. Often there are barriers and reservations against cooperation with universities. Following the results, universities should break it down, what it means to work together with them and what are the benefits: they have the chance to reflect their work with external actors. Moreover in the collaboration with entrepreneurs not only a formal but also a working network of different stakeholders is needed, as well

as a clear understanding of the different roles and responsibilities the different actors have. Following the interviews it is also crucial to have clarity about the different interests (financial interests) of the involved actors. Independency of universities has become a central issue in this context. Especially in the collaboration with entrepreneurs it is important, so the interview partners to know the territorial dynamics and what competencies the single actors have as well as Knowledge on institutional and cultural obstacles.

The interviews show, that in all regions partners have experiences working in a multi-stakeholder network although with different stakeholders and within different formats. The following table summarizes with whom interview partners collaborate in the different project regions and in which form this cooperation takes place.

University	With whom?	In which form?
WU Vienna	Entrepreneurs Research institutes	Interdisciplinary teams Practical education/training/ courses Projects with companies (service learning projects)
BOKU Vienna	Entrepreneurs NGO- represents	Projects Platform Course Excursion Civil societal initiatives
Vechta	Entrepreneurs	Projects (starts-up)
Bolzano	NGO Social representatives Public institutions Entrepreneurs Faculties	Excursions Summer school Conferences Cooperation Projects Experts Personal contacts
Brno	Entrepreneurs NGO- represents Policy advocacy Other faculties	Personal contact (high!) Internship Lecture, lead thesis Summer school Initiatives
Gothenburg	NGO Local business Consultants Authorities Agencies	Bachelor Theses Courses Projects

Table 14: Multi-stakeholder cooperation

7.3 Summary and Discussion

Findings and results

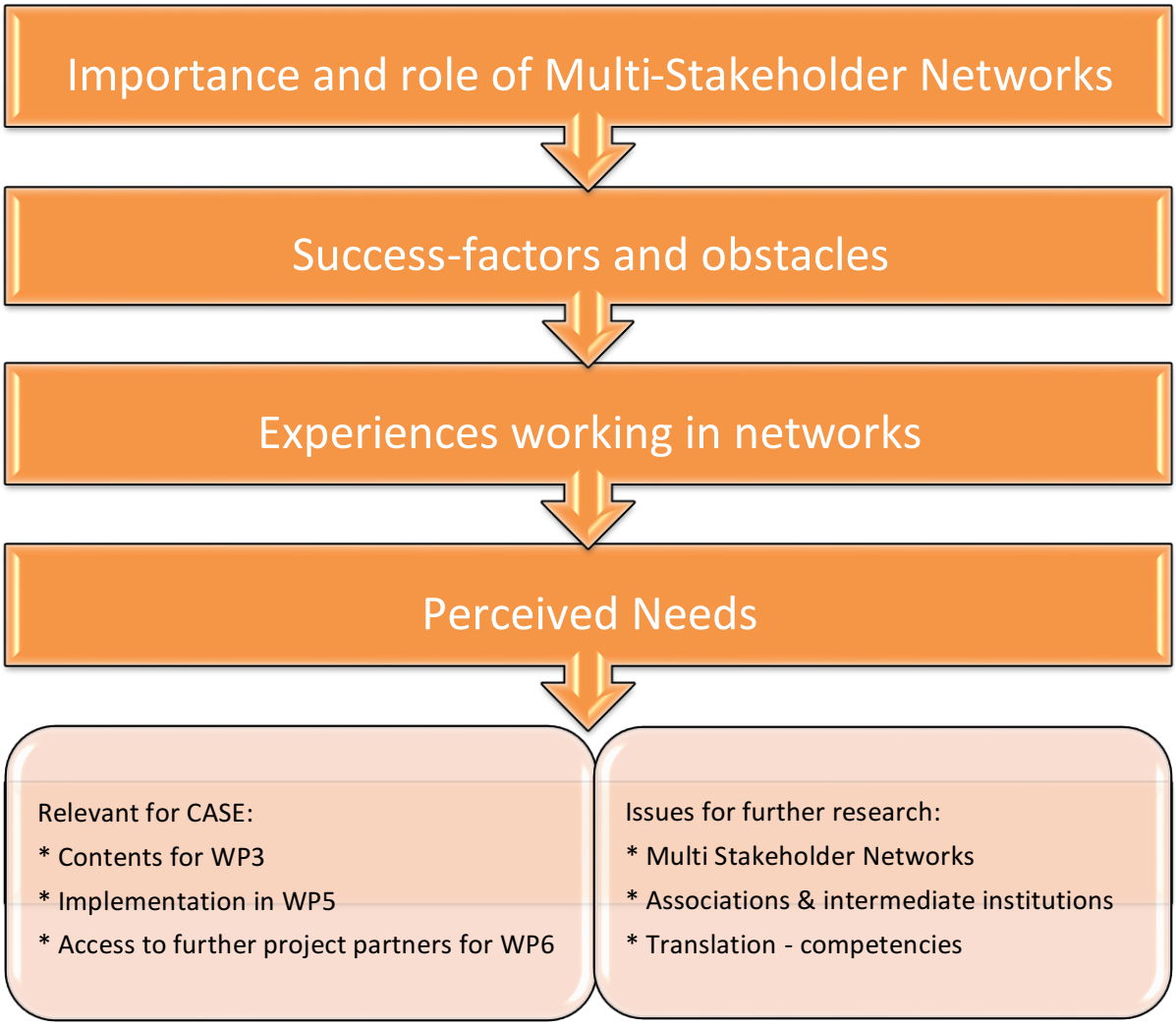
Both, companies and universities underline the importance and the outstanding opportunities for innovation. Multi-stakeholder networks seem to provide the right learning environments for complex sustainability issues. As such, most of the interview partners have experiences in working within. Important for successful networks seem to be a common understanding of objectives and interests, but also clear defined roles, structures and rules of collaboration. Concerning the stability of networks, enterprises point out the need for a designated coordinator. Lack of resources, in terms of time and money, is seen as one of the biggest obstacles. Following the literature, Roloff (2007, 238) underlines that multi-stakeholder networks "emerge, when a problem or a challenge becomes urgent for several different actors, who believe that they can or should not approach it on their own". As the results show there are many challenges working within a multi-stakeholder network. Especially in the acquitance phase as Roloff (2007) points out: network partners meet each other, share their opinions, learn each other's points of view and finally to find a common language. Especially in the first agreement phase, it becomes important to understand the complexity of the issue and share common definitions (descriptions). As a critical point in the multi-stakeholder network process Roloff (2007: 241) mention the implementation or, in other words, the point when the "network shifts from communication to cooperation and action". It can be seen as a test phase for the whole network, where failure must be included as a possible outcome. As Roloffs (2007, 243) underlines in her study, "Multi-stakeholder networks have the disadvantage that they are time consuming and often unstable. Although their spontaneity and informality recommends them for urgent and complex issues that cannot be approached by established institutions quickly enough, they are in many cases not able to construct a lasting and comprehensive solution". Regarding the Business-University cooperation, most of the interview-partners are actively engaged and point out the need to intensify this cooperation but also to put it on a more strategic level. One of the biggest challenges are different mind sets, interests and working routines and thus the need to bridge the gap between theory and practice.

Relevance for CASE and further research issues

The interviews provide valuable insights into multi-stakeholder-networks, which will be used as contents in WP 3 but also in the practice oriented WP 5. Interview partners from enterprises and universities could be future project partners for Service Learning projects in WP 5 and interdisciplinary lectures in WP 6. Moreover it could be also the seed for a multi-stakeholder network beyond the project, working on a regional but also on a European level.

In addition some further issues were identified, which could be of particular research interest

- Multi-Stakeholder Networks: They are sometimes hyped as solution for all, with too little regard on challenges, caused by diversity of the involved partners. Further research on practical examples, especially with participation of enterprises could be of great value.
- Associations and intermediate institutions: Especially the big, formal associations play an important role in setting standards in society and economy. How far goes the power of these institutions? And which role they could overtake as multipliers of sustainable socio-economic development?
- Translation competencies: Diversity in partnerships causes differences in used "languages". What does translation competence mean? What competencies are necessary to understand and translate different languages but to set up a common language within a multi-stakeholder network as well?



Graphic 8: Multi-stakeholder networks

8. Best Practice Analysis

As the interviews show there are different formats, which have been implemented in the different areas of the Erasmus+ project. On the one hand there are entire study programmes, which integrate themes of sustainable socio- economic development and on the other hand, single initiatives, events, conferences on sustainability driven entrepreneurship which represent curricular and extracurricular initiatives. Furthermore the promotion of SE in single courses for example is often linked to the interest of single individuals who see the necessity of including sustainable socio- economic development measures in the study programmes or in their courses. As the interviews show, the integration of sustainable socio-economic development issues into study programme is not only a possibility but indeed a necessity before the background of an on-going complexity of reality.

Considering the fact that many interview partners claim institutional barriers in integrating SE in already existing study programs, extracurricular initiatives seems to achieve high importance to promote Sustainable socio- economic development, as for example bottom up initiatives, platforms, external labs and conferences, competence centers, talent programs etc. As the analysis of the interviews with universities show, bottom up initiatives by students, professors or local actors are an essential part in supporting curricular activities.

The following table shows the 12 most interesting Best Practice examples for the CASE project. The examples reflect the reality in the regions of the Erasmus+ project and beyond. Concerning the next steps of the project University courses and Master programs are considered as most important. Nevertheless there are other Best Practice examples which can be find in the Appendix.

BEST PRACTICE	DESCRIPTION	STRUCTURE	CONTENT	COMPETENCIES	METHODS
E&I Project: Social Entrepreneurship course (WU Vienna)	Die E&I Zone Social Entrepreneurship deals with organizations promoting innovative solutions for social problems. The aim is to elaborate a final document with an in- depth analysis and concrete recommendations for action. The course is embedded in the start- up context. Therefore students work together with young and social entrepreneurs in developing a working concept.	Course Semester 35 hours	• Social entrepreneurship innovation • Start's up (from the idea to the realization)	• Theoretical competencies (social entrepreneurship) • Critical thinking • Reflexive thinking • Strategic competence • Self-organization • Teamwork	• Praxis projects • Open discussions • Skills workshops • Coaching
E&I Project: Garage - Business Model Development course(WU Vienna)	In the course "Garage" the students will learn to implement instruments and methods that help in discovering, evaluating and realising business ideas. They will have the possibility to bring in their own business ideas and develop them in interdisciplinary teams within a structured process. The Garage received the "Award for Excellent Teaching2011" at WU Vienna and stands out due to its highly interdisciplinary setting	Course Semester 24 hours	• Idea generation • Start's up • Business possibilities	• Develop sustainable business models • Evaluating business ideas • Evaluate business possibilities • Identify customers and their needs • Analyze and evaluate the environment • Apply creativity techniques • Communicative skills • Team work • Project management	• Interdisciplinary teams • Coaching • Mentoring • Interactive workshops • Working in teams • Open discussions • Individual team coaching's • Coaching's by external mentors • Online and offline coaching sessions

The Doctoral School of Sustainable Development (dokNE) (BOKU Vienna)	The Doctoral School of Sustainable Development ("Doktoratskolleg Nachhaltige Entwicklung" dokNE) was established in order to support and promote young scientists in sustainability research. The school provides an organizational framework for cross disciplinary research with a practical orientation, at the interface of regional development, resource use, policy and society. DokNE II is financed by BOKU, by the Austrian Federal Ministry of Science and Research, the states of Vienna and Lower Austria and the Ecosocial Forum Vienna.	Doctoral School program	• Sustainable Development • Cross disciplinary research • Regional development • Resource use • Policy and society • Water governance • Rural development	•Interdisciplinary and transdisciplinary competencies	• Joint decision-making method • Training for PhDstudents in principles • Theories and methods of inter- and transdisciplinary sustainability research • Guest lectures, experts
			• Sustainable farm management • Science-policy interaction • Social equity and justice		• "Vision and mission statement" formulated in a consensus-based discussion process
Sustainability driven Entrepreneurship. Planning and implementation of start-ups, associations, NGOs, initiatives and ideas (BOKU Vienna)	In 2011 a course was launched to offer students learning on how to plan and implement Junior Enterprises (JE) active in the field of sustainability and social entrepreneurship. The aim was both to offer practical teaching about sustainability, leadership, business planning, and to develop 4 JE.	Project work 3 semester hours	• Practical input on marketing, • Business development • Hands on development of the 4 JE	• Learning on how to plan and implement Junior Enterprises	• Practical teaching • Business planning and to develop 4 JE

MA in ECO- SOCIAL DESIGN (UNIBZ)	The Master of Arts in Eco-social Design (Glocal Design) promotes the study of eco-social transformations, focusing on local developments and their interplay within global contexts. The Faculty's specific didactic approach, based on the study in interdisciplinary projects, gathers theory and practice in order to deal with complex questions and stimulate the participants to develop effective answers through the means of design. Designers can help to envision and enable resilient projects locally, which can be adapted elsewhere – multiplied and networked globally.	MA Program 120 credits 2 years	• Eco social design • Sustainable practices of production, consumption and living, approaching products, interactive applications and communications • Eco-social transformations • Local and global developments	• Design projects • Transdisciplinary competence • Deal with complexity • Teamwork • Being creative	• Interdisciplinary projects • Teaching and learning are organized in in multidisciplinary projects • Collaborate in teams • External experts and stakeholders • State-of-the-art labs
Course project management for sustainable development (Uni Gothenburg)	The course is given on an advanced level and assigned to be included in a Master degree in Earth Sciences and in a Master degree in Environmental Sciences, Faculty of Science. Previous to the course, a term of reference for the project is formulated by the teachers and stakeholders in a specific local context in the Gothenburg region. The main object of this course is to identify, formulate and evaluate scenarios of sustainable development in a particular local context. The student learns and trains how	Course 10 weeks 15 hec	• Project management • Sustainable development	• Anticipatory competencies •Planning • Interdisciplinary competencies • Teamwork • Interact with stakeholders • Analyze competence	• Project assignment • Seminars and lectures • Experts
	to plan, carry out and present results from an investigated problem.			• Identify and use relevant indicators of sustainable development • Communication skills	

Sustainability challenge (WU Vienna)	The Sustainability Challenge is an inter - and transdisciplinary university course, offered at the four largest universities of Vienna, to connect the students of today and thus the decision-makers of tomorrow, with the issue of sustainable development. As an interface between science, business and politics the Sustainability Challenge aims at the cooperation of various sectors to achieve a just, viable and livable world. The Sustainability Challenge complements conventional university work by interdisciplinary working group assignments and the Service Learning methodology.	Course 1 semester	• Sustainable development and smart city topic • Climate change • Governance and ecological • Economics • Sustainable building and • Renewable energy • Social-ecological politics	• Normative competencies • Strategic competencies • Anticipatory competencies • Systemic competencies • Interpersonal competencies	• Inter- and transdisciplinary working group assignments • Service Learning methodology • Networking • Circulatory and discourse learning
MA Sustainability Science (Leuphana University of Lüneburg)	A distinctive feature of the Sustainability Sciences program is its balance between sustainable natural sciences and sustainable humanities. The goal is to look at socialecological systems in an academically grounded and interdisciplinary manner. In complex social-ecological systems material processes are closely interconnected with economic, juridical, political, and cultural contexts as well as with strategies and practices of important social actors. These immaterial prerequisites and conditions of environmental sustainability problems and the way these problems are addressed are the subject of sustainable humanities.	MA 4 semester 120 CP	• Sustainable development • Inter- and transdisciplinary • Research-oriented • Problem-focused, sustainable - natural sciences • Sustainable humanities	• Communicative skills • To develop, realize, and reflect on one's own disciplinary • Interdisciplinary competencies • Becoming change agents • Manage processes • Evaluate the processes' results and impacts	•Interdisciplinary and transdisciplinary methods
MASTER IN COMMUNITY DEVELOPMENT/ Interdisciplinary European Master's	This course provides the students with the tools and skills to tackle the relevant theories, while acquiring and applying those methods and instruments when researching the development of local and regional areas. The structure of the course ensures that all of the modules	MA 4 semester 120 Credits	• Development of local and regional areas • Academic access to area of research and the sphere of activity	•Methodological practices • Anticipatory competencies • Strategic competencies	• Intensive seminars (on campus program) • Research workshops (on campus program) • Monitored self-study

degree course (Munich)	provide possibilities for the students to focus on a particular area, while accommodating new societal trends and discourse methods. Where it is possible it is aimed to establish a link between the theories that students learn and methodological practices that they acquire on the course and the professional know-how that they might have picked up during their working lives.		• Mobilization • Self-help und Selforganisation in the community • Organisation of projects	• Conception and planning of a project or business • Communication competencies • Activation competencies • Mediation competencies	• Self-study • Supervised research praxis • Supervised project work
Social Entrepreneurship, Social Innovation and Sustainability (Malmö University)	The course focuses on social entrepreneurship, social innovation and sustainability and is structured in three modules: The aim of the course "Social Entrepreneurship, Social Innovation and Sustainability" is to provide students with a new orientation and way of thinking to organize and lead sustainable development namely through social entrepreneurship and social innovation.	Program 120 Credits	• Social entrepreneurship • Sustainable development • Sustainable organisations	• Identify and describe principal models • Innovative thinking • Critical thinking • Analytic competencies • Integrative thinking	• Series of lectures • Class discussion • Guest lectures and study visits • Caseworks and case discussion • Self-studies
Master's Program in International Business with Specialization in Sustainable Entrepreneurship (Business School Lausanne)	The BSL Master in International Business with specialization in Sustainable Entrepreneurship gives you a master's business degree plus future-oriented business and management knowledge. This program option enhances future career prospects in three important ways: a) the employability is increased in the NGO and nonprofit sector; b) business organizations with an interest in implementing sustainability will find skills and knowledge set of high relevance; and c) to start your own business or join a start-up company either in the traditional for-profit domain or in the fast-growing area of social entrepreneurship.	Specialization 18 months.	• Sustainable Entrepreneurship • Future-oriented business • Management knowledge	•Critical thinking • Complex thinking • Systemic problemsolving • Strategic thinking •Project management skills • Risk assessment • Tools for effective industry and market research in turbulent times	• Lectures and seminars • Workshops • Experts •Project work • Group discussion

Eco-Venturing – Development of sustainable business concepts for "green" future markets (University	This module is intended for students interested in startups and innovative solutions in the field of sustainable economics. The main focus of the Eco-Venturing module is the development of new or established business start-up concepts. Under of guidance of their lecturer, participants will work together with selected regional business	Module	• Sustainability • Sustainabilityoriented business concepts • Business management	• Critical thinking • Anticipatory competencies • Strategic competencies • Systemic competencies • Normative	• Lecture and presentation • Project work in teams and with business partners: development of a business concept
Oldenburg, Germany)	partners who are both economically successful and contribute to the protection of the environment and the climate, to promote such start-up concepts. What these concepts have in common is that they address the issue of sustainability. It is part of the Eco-Entrepreneurship major study course.		• Start-up and innovation management • Knowledge on entrepreneurship • Strategy development • Ecological and sustainability-oriented evaluation of start-up ideas	competencies	with the aim of promoting actual business start-ups •Coaching •Writing final reports • Business partners together with students

9.

Summary

Themes	Competencies	Methods	Best Practice
Module 1 SUSTAINABLE SOCIO- ECONOMIC DEVELOPMENT			

Sustainable socio-economic development ‘ • Concepts of sustainability (strong & weak sustainability, three dimensions) ‘’’ • Concepts of sustainable & green economy ’’ • Eco social transformation ‘’’’ • Alternative economic strategies & models: degrowth, post-growth, ECG ‘’’’’ • Sustainable humanities • Economic and social structures ‘ **Global socio-economic development ‘** • Global sustainability challenges & trends ‘’’’ • Global differences in socio-cultural contexts ’’ • Global value chains ‘ • International trade, financing: backgrounds ’ • Global competition – global cooperation ’’ **Regional socio-economic development ‘** • Sustainable regional development ‘’’’’ • Urban development: smart cities’’’ • Rural development • Community development • Local economic cycles, value chains ‘’ • Globalisation – regionalisation ’’ **Responsible economy ‘** • Ethics & values: social justice and equity, freedom ‘’’’ • Common welfare, prosperity, quality of live ‘’’’ • Responsibility of consumers and producers ‘’ Resiliency ‘’’’	• Holistic thinking • Dealing with complexity • Reflexive Thinking • Dealing with contradictions • Future oriented thinking • To understand terms and fill them with content • To understand the ethic, environmental, economic consequences of acting • To identify, formulate and evaluate scenarios of sustainable development • To select and implement relevant methods and approaches • To understand and analyse actual problems within a given time frame. • Anticipatory thinking • To act as change-agents	• Seminars • Expert-lectures • Open discussions • Interdisciplinary groups • Congresses and conferences • Simulation – tools, games • Santa Claus method • Science fiction thinking • Design thinking • Graphic recording • Role model reflection • Reverse modelling and backcasting • Reading and writing for critical thinking • Interpersonal communication • Experience responsibility • Reflection phase	• The Doctoral School of Sustainable Development (dokNE) (BOKU Vienna) • MA in ECO- SOCIAL DESIGN (UNIBZ) • Eco-Venturing – Development of sustainable business concepts for “green” future markets (University Oldenburg, Germany) • Master in Community Development/ Interdisciplinary European Master's degree course (Munich) • MA Sustainability Science (Leuphana University of Lüneburg)

Module 2 SUSTAINABLE AND SOCIAL INNOVATION			
Innovation and future themes • Innovation and creativity “””” • Co-creation and open source “’ • Role models and pioneers’”’ • Social innovation “” • Eco innovation “’ • Energy: renewables (water, wind, solar), energy efficiency, energy efficient building, hybrid mobility • Resource efficiency: re- and up cycling, cradle to cradle, waste management • Agriculture: organic food; food coops • Tourism: sustainable tourism & travel • Mobility: intermodal mobility, smart urban logistics, health care logistics • Technology: Industry 4.0 • Diffusion (eg crowd funding)	▪ To have the intention to transform the status quo To ▪ acquire necessary knowledge for business with a positive environmental & social impact, ▪ Increasing knowledge and motivation to business ▪ Activation ▪ Self- organization ▪ To apply creative techniques ▪ Solution oriented thinking (act and react proactive towards societal problems in any discipline and create solution for it) ▪ To search for, recognise and evaluate innovative business possibilities. ▪ To analyse and evaluate the environment around a business idea	▪ Creativity Trainings ▪ Coaching, lectures, seminars ▪ Interdisciplinary focusgroups ▪ Dilemma analyses and management ▪ Solution oriented approaches ▪ Consensus activities ▪ Earth walk ▪ Real life experiences: vision and norm formulation ▪ Link to practical examples/cases/platforms ▪ Ideation ▪ SWOT, ABC development	▪ E&I Project: Social Entrepreneurship course (WU Vienna) ▪ E&I Project: Garage - Business Model Development course(WU Vienna) ▪ MA in ECO- SOCIAL DESIGN (UNIBZ) ▪ Social Entrepreneurship, Social Innovation and Sustainability (Malmö University)

Module 3: SUSTAINABILITY DRIVEN ENTERPRISES

Entrepreneurship and Management • Project- and process management ‘’’’ • Change management ‘’’’ • Leadership and governance ‘’’ • Corporative social responsibility • Sustainability controlling and benchmarking ‘’ • Sustainability reporting ‘ • Financing sustainability: crowd funding, hybrid financial models ‘’’ • Ethical and social marketing’’’’ **Communication** - Relation building’’ • Multi-stakeholder dialogue’’’’’ • Social discourse and communication with the public’’’’’ • Teambuilding and group dynamics’’’’ • Rhetoric and communication’ **Sustainable start ups** • sustainable concepts • Opportunities & challenges ‘’ • Social & sustainability driven entrepreneurship’’’’ Sustainable business models ‘’’’’’	Entrepreneurial skills (how to set up a business; how to make a budget plan; knowledge of accounting; how to get a credit from a bank; Soft skills: how to lead people, how to be a good manager, how to make people enthusiastic about their plan) To develop sustainable business models To design for more sustainable practices of production, consumption and living, approaching products, interactive applications and communications.	Excursions Service learning projects Research projects with companies/organizations Skill workshops Communication training Space for trials and error and uncertainty Personal skills as a starting point to reflect about own opportunities/responsibilities Teambuilding and teamwork methods Fear and fail conferences Reflection	E&I Project: Garage - Business Model Development course(WU Vienna) Sustainable Entrepreneurship. Planning and implementation of startups, associations, NGOs, initiatives and ideas (BOKU Vienna) Course project management for sustainable development (Uni Gothenburg) Sustainability challenge (WU Vienna) Social Entrepreneurship, Social Innovation and Sustainability (Malmö University) Master’s Program in International Business with Specialization in Sustainable Entrepreneurship (Business School Lausanne) Eco-Venturing –Development of sustainable business concepts for “green” future markets (University Oldenburg, Germany

Module 4: SUSTAINABILITY POLICIES AND MULTISTAKEHOLDER NETWORKS			
Multi-stakeholder networks • science-society interface ‘’’ • Transdisciplinary networks ‘’’’’’ • Action research ‘’’’’ • Cooperation of various sectors ‘ • Circulatory and discourse learning • Stakeholders and actors ‘’ • Relations and social networks’’ • Challenges in multi-stakeholder networks ‘’’’ • Measures to encounter challenges and barriers’ • Translators to respond to different languages ‘’ **New institutional settings** • Deliberative structures and participation processes • Deliberative structures and participation processes ‘’ • Spaces to facilitate interactions and relationships ‘’’’’’ • Various spheres to be encountered and deconstructed: public, knowledge and market • History and development of institutional settings	• Know How in order to connect praxis and science • To recognize partners on a local and international level • To bundle forces • To be able to translate interests (same language) • Ability to cooperate within a multi-stakeholder network to dialogue with parties with a practical background • Participation in research networks • To identify customers and their needs • To interact with stakeholders • To acquire the methodological tools • To act in an interdisciplinary and transdisciplinary context • Communicative skills • Skills to divide tasks and responsibilities within the context of an interdisciplinary project team).	▪ Praxis oriented projects ▪ Interactive workshops ▪ Guided ▪ internships Critical external ▪ experts Jam sessions/ ▪ Science slam 5-7 days intense ▪ group experience ▪ Interdisciplinary courses ▪ Training on project ▪ management Stakeholder Analysis ▪ Social Network Analysis In depth analyses of challenges in ▪ multistakeholder networks Course and training ▪ of skills for translators	▪ Sustainability Challenge (WU Vienna) ▪ MASTER IN COMMUNITY DEVELOPMENT/ Interdisciplinary European Master's degree course (Munich)

		Community building processes	

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Appendix

Interview Guides

A 1 Interview Guide for Enterprises

GENERAL INFORMATION

Interview	
Time:	
Location:	
Interviewer: name, PP	
Interview partner	
Name:	
Position, tasks:	
Company	
Name:	
Location:	
Size:	
Sector:	
Indicators of sustainability:	

SUSTAINABLE SOCIO- ECONOMIC DEVELOPMENT

- What is your understanding of sustainable socio-economic development?
- How would you define a “green economy”?
- How do you implement sustainable economy in your company?

In detail: ecological sustainability
social sustainability
economic sustainability

- What was your motivation and starting-point to make changes towards sustainability in your company?
- What are your experiences in the change-process towards sustainability?
  In detail: supportive, motivating
  experiences difficulties and obstacles Thinking of the
  whole region:
  What are the big opportunities for sustainable economy?
  What are the obstacles and difficulties?
- What are the biggest opportunities and challenges for new start-ups to tackle topics of the growing sector of "green economy"?

COMPETENCIES FOR SUSTAINABILITY-DRIVEN ENTREPRENEURSHIP

- What are typical working-situations / challenges you have to deal with, when acting as a sustainable enterprise?
- Which competencies are needed to handle these situations well?
  Definition: Competencies as abilities, skills, knowledge
  In detail: Subject & methodological competence
  Social competence
  Personal competence

GAINING COMPETENCIES FOR SUSTAINABILITY-DRIVEN ENTREPRENEURSHIP

- How and where may these competencies be gained/developed?
  In detail: in school education in
  academic education
  in vocational trainings and working-experiences
  other learning-context
- Which competencies for sustainable entrepreneurship are fostered in your company and how?
  Which measures do you plan in the near future?

COOPERATION & LEARNING IN MULTI-STAKEHOLDER NETWORKS

- How do you estimate the impact of networks on fostering sustainable entrepreneurship?
- Are you involved in any networks or cooperation-projects?
  In detail: with enterprises with universities,
  research-institutions with schools
- What is crucial for multi-stakeholder networks?
  What are success-factors?
  What are restraining aspects?
- How could future cooperation-initiatives together with universities look like?
  Do you have ideas, proposals, wishes?
  In detail: contents formats (lectures,
  seminars,…) cooperation-
  projects

A 2 Interview Guide for Universities

GENERAL INFORMATION

INTERVIEW	
Time:	
Location:	
Interviewer: Name, PP	
INTERVIEWPARTNER	
Name:	
Position	
University	
Name:	
Location:	
Faculty	
Name:	
Location	
Role & position at university	

Measures towards a sustainable socio-economic development

- Universities have a central role in enhancing a sustainable socio-economic development (especially when we consider collaborations between university and business)
  a. Which measures have already been implemented? What are your experiences concerning the challenges of implementation?
  b. Which university activities would you consider important for this?

Sustainability-driven entrepreneurship in Education/Teaching and Research

- Which research and educational contents do you relate to the concept of sustainable entrepreneurship?
- Which institutional and professional framework conditions are necessary in order to facilitate a scientific research and education for sustainable entrepreneurship?
- What are your experiences concerning challenges to develop and promote teaching for sustainable entrepreneurship? Could you explain typical situations/challenges you have to deal with when developing and promoting teaching for sustainable entrepreneurship?
- What could be changed/developed to support you in this action?

Competencies for sustainability-driven entrepreneurship

- What challenges do students face when they deal with research for sustainable entrepreneurship? What challenges do students face when they deal with education/teaching for sustainable entrepreneurship?
- Which competencies are needed to develop and promote sustainable entrepreneurship?
- What would be the difference between a student with and without training in sustainable entrepreneurship

- Which competencies should students develop to act as promoters for sustainable entrepreneurship in the future?
- How can these competencies be acquired best? Which methods and experiences are required for this purpose?

Societal dimension of sustainability-driven entrepreneurship

- Universities do not only have a responsibility towards their students but also towards society.
  a. How do you perceive these different levels of responsibility?
  b. In your opinion, which opportunities and difficulties are connected with this?
- The idea to promote academic research and education for sustainable entrepreneurship involves different local actors such as business partners in the region. How is the university/faculty positioned in this context?
- Are you involved in any local teaching cooperation projects concerning sustainable entrepreneurship? (with entrepreneurs, public institutions etc.) What are your experiences?
- How would you define the specific role of students and tutors (teachers) in this context?
- What are the key factors of a successful cooperation between science/teaching and economy? Could you explain challenging parts such as barriers and obstacles concerning this issue?
- Which competencies are necessary in enhancing the cooperation for sustainable entrepreneurship between higher education and local enterprises?
- How can these competencies be acquired in the collaboration between universities and innovative enterprises? Which methods and experiences are useful for this purpose?
- Which opportunities do you see in a stronger involvement of different local actors (in particular entrepreneurs) in academic research and education?

Future Perspectives

In which way do you think you could contribute to develop and implement different modules for an European Master Program „ Sustainability Driven Entrepreneurship, Policies and Innovation “?

Which themes, contents and formats your faculty could bring in?

What is your experience regarding interdisciplinary collaboration at your University? How would you imagine interdisciplinary modules regarding an European Master program „Sustainable Entrepreneurship“?

Is there anything that has not been mentioned yet and you would like to add?

Analyse Frameworks

A 3 Analyse Framework for Enterprises

1. GENERAL INFORMATION

Interview	
Time:	
Location:	
Interviewer: name, PP	
Interview partner	

Name:	
Position, tasks:	
Company	
Name:	
Location:	
Size:	
Sector:	
Indicators of sustainability:	

2. SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT

2.1. Understanding of sustainable socio-economic development	
2.2. Understanding of "green economy"	
2.3. Implementation of sustainable entrepreneurship in the company	
Ecological sustainability	
Social sustainability	
Economic sustainability	
2.4. Motivation & starting point for changes towards sustainability in the company	
2.5. Experiences in the change-process of the company	
Supporting aspects	
Difficulties & obstacles	
2.6. Regional focus on sustainable socio-economic development	
Opportunities	
Obstacles	
2.7. Sustainable start ups	
Opportunities	
Challenges	

3. COMPETENCIES FOR A SUSTAINABILITY-DRIVEN ENTREPRENEURSHIP

3.1. Typical working situations/challenges in the company	
3.2. Necessary competencies for a sustainability-driven entrepreneurship	
Subject & methodology competence	
Social competence	
Personal competence	

4. GAININIG COMPETENCIES FOR SUSTAINABILITY-DRIVEN ENTREPRENEURSHIP

4.1. Path of competence-development	
School education	
Academic education	
Vocational training & working experience	
Other context	
4.2. Fostering of competence-development in the company	
4.3. Planned measures in the company	

5. COOPERATION & LEARNING IN MULTI - STAKEHOLDERNETWORKS

5.1. Impact of learning in networks and cooperation-projects	
5.2. Current involvement in networks & cooperation-projects	
Companies	
Universities & research-institutions	
Others	
5.3. Crucial aspects for learning in networks	
Success-factors	
Restraining aspects	
5.4. Ideas & needs for cooperation with universities	
Contents	
Format (lectures, seminars,…)	
Projects	

A 4 Analyse Framework for Universities

Category 1 Measures towards Sustainability	**Prof 1**	**Prof 2**	**Prof 3**	**Prof 4**	**Prof 5**
Code1 Implemented measures towards sustainable socio-economic development at the university					

ode2 Implemented measures towards sustainable socio-economic development at the university Experiences concerning challenges					
Sustainable Entrepreneurship in Education/Teaching and Research		**Prof 2**	**Prof 3**	**Prof 4**	**Prof 5**
Research and Education themes related to Sustainable Entrepreneurship					
Institutional and professional framework for scientific research and education for sustainable entrepreneurship					
Challenges in developing and promoting teaching for sustainable entrepreneurship (experiences/ concrete situations)					
Challenges students face dealing with sustainable entrepreneurship					
Difference between a student with and without training in sustainable entrepreneurship					
Competencies needed for a sustainable entrepreneurship					
Competencies students acquire					
Ways and methods of acquirement					
Societal dimension of sustainable development and sustainable entrepreneurship		**Prof 2**	**Prof 3**	**Prof 4**	**Prof 5**
different levels of responsibility/ opportunities and difficulties					

university/faculty positioned regarding the involvement of different local actors					
Involvement in local cooperation projects Experiences: obstacles & chances					
Role students/ teachers have					
key factors of a successful cooperation between science and economy /barriers and obstacles					
Competencies acquired in the collaboration between universities and entrepreneurs Real-life working situations as examples for competencies					
Forms these competencies are acquired/ experiences					
Opportunities in the involvement of different actors					
Forms of contribution to the project		**Prof 2**	**Prof 3**	**Prof 4**	**Prof 5**
themes, contents and formats your faculty could bring in/ Ideas & proposals for collaboration with entrepreneurs					
Experiences in the interdisciplinary work					
Thinking of interdisciplinary modules for the master					

Description of Best Practice Examples

B 1 E&I Project: Social Entrepreneurship course (WU Vienna)

Die E&I Zone Social Entrepreneurship deals with organizations promoting innovative solutions for social problems. In the theoretical part concepts like Social Entrepreneurship are presented and discussed. Contemporary, groups of 4 to 5 students deal with topic specific questions from an external organization. The aim is to elaborate a final document with an in- depth analysis and concrete recommendations for action. The course is less pre-structured. One of the main challenges students face in this course is to structure the own projects within one semester. The course is embedded in the start- up context. Therefore students work together with young and social entrepreneurs in developing a working concept. After the course, students will have achieved the following competencies: to have the academic and practical know-how concerning social Entrepreneurship and to reflect critically on it, to develop independently an idea and/or strategic measures to conceptualize Social Enterprises, to connect knowledge and to recognize interrelations, to have the ability to work both as part of a team and independently, the knowledge is achieved by open discussions by coaching sessions, skills workshop.

Structure: course
Content: social entrepreneurship, innovation, start up (from the idea to the realization)
Competencies: theoretical competences (social entrepreneurship), critical thinking, reflexive thinking, strategic competence, self- organization, teamwork, organizing. **Method**s: praxis projects, open discussions, skills workshops, coaching.

B 2 E&I Project: Garage - Business Model Development course(WU Vienna)

In the course “Garage” the students will learn to implement instruments and methods that help in discovering, evaluating and realising business ideas. They will have the possibility to bring in their own business ideas and develop them in interdisciplinary teams within a structured process. The teams will be supported in each step by the course instructors and by external mentors, with the goal of transforming an initially rough idea into a convincing business concept. At the end of the term the students' start-up-teams will present their business ideas in front of potential investors and other experts. The Garage received the "Award for Excellent Teaching2011" at WU Vienna and stands out due to its highly interdisciplinary setting. Students from different Vienna universities take part in this course (e.g. WU, TU, BOKU). Interdisciplinary teams consisting of students from diverse fields allow - similar to real start-up situations - various perspectives, skills and competencies to shape the business idea and implementation. On the basis of the real-practice situation students will learn what is necessary to develop and realise a business idea. After completing this course, students will have the ability to search for, recognise and evaluate innovative business possibilities, develop business ideas using appropriate methods and tools, identify customers and their needs, analyse and evaluate the environment around a business idea, develop sustainable business models, apply creativity techniques.
Furthermore the students will acquire relevant complementary skills: Project management: successfully managing innovative (therefore less structured) projects, reaching decisions under uncertainty, managing several different stakeholders at once, summarising the most important project results in a business proposal Team work: working in an inter-disciplinary team, efficiency through recognising and utilising individual strengths of team members. Dealing with various work methods, opinions and perspectives. Communication: lively discussions and interactive workshops, structuring complex data (project results), presenting them in writing and orally to various target groups. The course is built around several workshops, which are structured to be interactive and combine several teaching methods to impart various topics and skills. Among them are working in teams, open discussions, individual team-coaching and coaching by external mentors. The basic principles of idea generation, searching for business possibilities and the methods to be employed during the semester will all be presented and discussed during the kick-off session.
The students will be supported in the further development of their business ideas by the course instructors and external mentors in both online and offline coaching sessions and expert talks. Regular presentations of results are scheduled. The results of the start-up-planning process will be summarised in a business proposal.

Structure: course
Content: idea generation, start up, business possibilities

Competencies: discovering, evaluating and realising business ideas, search for, recognise and evaluate innovative business possibilities, develop business ideas using appropriate methods and tools, identify customers and their needs, analyse and evaluate the environment around a business idea, develop sustainable business models, apply creativity techniques, communicative skills, team work, project management.

Methods: interdisciplinary teams, coaching, mentoring, interactive workshops, working in teams, open discussions, individual team coaching and coaching by external mentors, online and offline coaching sessions

B 3 The Doctoral School of Sustainable Development (dokNE) (BOKU Vienna)

The Doctoral School of Sustainable Development ("Doktoratskolleg Nachhaltige Entwicklung" dokNE) was established as the first structured doctoral school at University of Natural Resources and Life Sciences, Vienna (BOKU) in 2007, in order to support and promote young scientists in sustainability research. To-date it remains the only doctoral school in Austria, with a specific focus on sustainability. The school provides an organizational framework for cross-disciplinary research with a practical orientation, at the interface of regional development, resource use, policy and society. The first project phase dokNE I (2007-2010) was initiated by BOKU in collaboration with the research program proVISION of the Austrian Federal Ministry of Science and Research, the federal states of Vienna, Lower Austria and Styria as well as the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management. Through this joint initiative of project partners and funders, networks were built and expertise increased. Numerous scientific reports and journal articles as well as popular scientific publications were produced as a result. In October 2011 the second three-year round of dokNE was launched. DokNE II comprises an interdisciplinary and international team of ten PhD-students from Austria, Germany, Laos, Uganda and Russia, a number of master students as well as 16 supervisors from several departments of BOKU and other international universities. DokNE II is financed by BOKU, by the Austrian Federal Ministry of Science and Research, the states of Vienna and Lower Austria and the Ecosocial Forum Vienna. The ten research projects of dokNE II are focused on sustainability strategies and aim at examining concrete, practical issues in the fields of policy, planning, agriculture or tourism, often prone to tension between natural resource use, human attitudes, and nature conservation. Specifically, the projects are exploring sustainable development options in water governance, eco-tourism, rural development, sustainable farm management and farmers' behaviour, science-policy interaction, sustainable universities and human nature relationship concepts. Each project combines social and natural science perspectives and knowledge, includes practical expertise and ensures a constant dialogue with all relevant actors in the respective research field. Within the school a consensus and joint decision-making method is applied in order to integrate actual developments and innovative ideas of the young researchers. DokNE is regularly evaluated by an external international advisory board of scientists and practice experts. DokNE provides excellent academic training for PhD-students in principles, theories and methods of inter- and transdisciplinary sustainability research. For this purpose, lecturers from BOKU as well as external researchers and guest lecturers are integrated into the curriculum. The projects and relevant sustainability issues are examined and critically discussed on a regular basis in the doctoral seminar as the central space of exchange of the school. DokNE follows the ethical concept of sustainable development in its organizational structure as well as in the content of the research projects. This approach is set forth in a "vision and mission statement", formulated in a consensus-based discussion process. The vision and mission statement of dokNE serves to establish a common ground, in light of the manifold and often unclear use of the sustainability term by science, politics and economy, and to underline the school's clear position on "sustainability" in the sense of social equity and justice.

Structure: Doctoral school

Content: Sustainable Development, cross-disciplinary research, regional development, resource use, policy and society, water governance, eco-tourism, rural development, sustainable farm management and farmers' behaviour, science-policy interaction, sustainable universities and human nature relationship concepts, social equity and justice.

Competencies: interdisciplinary and transdisciplinary research, doing practical oriented research,

Methods: joint decision-making method, training for PhD-students in principles, theories and methods of inter- and transdisciplinary sustainability research, guest lectures, experts, "vision and mission statement", formulated in a consensus-based discussion process

B 4 Sustainable Entrepreneurship. Planning and implementation of start-ups, associations, NGOs, initiatives and ideas (BOKU Vienna)

In 2011 a course was launched to offer students learning on how to plan and implement Junior Enterprises (JE) active in the field of sustainability and social entrepreneurship. The aim was both to offer practical teaching about sustainability, leadership, business planning, and to develop 4 JE. These JE are:

- A CO2 Compensation consulting company
- Solar PV company, aiming to install a 50 kWp plant at BOKU
- Junior Enterprise Hub to support the development of JE in terms of a logistic and knowledge service provider
- Development of a Green Bank account for students.

After the successful implementation of the first course, this successor course will continue the further development of the 4 JE mentioned above. Both practical input on marketing, business development and hands on development of the 4 JE is the aim of the course.

Structure: course/ seminar
Content: practical input on marketing, business development and hands on development of the 4 JE
Competencies: learning on how to plan and implement Junior Enterprises
Method: practical teaching about sustainability, leadership, business planning, and to develop 4 JE

B 5 MA in ECO- SOCIAL DESIGN (UNIBZ)

The forthcoming biennial Master of Arts in Eco-social Design (Glocal Design) promotes the study of eco-social transformations, focusing on local developments and their interplay within global contexts. It enables young creative professionals to design for more sustainable practices of production, consumption and living, approaching products, interactive applications and communications. Students learn to work on design projects equipped with a transdisciplinary set of instruments beyond design, gathered from social and environmental sciences, economics and business, technology and crafts. The Faculty's specific didactic approach, based on the study in interdisciplinary projects, gathers theory and practice in order to deal with complex questions and stimulate the participants to develop effective answers through the means of design. The master's program works across many fields of design and provides specific skills in order to specialize in different areas of application and design disciplines. Designers can help to envision and enable resilient projects locally, which can be adapted elsewhere – multiplied and networked globally. We use the region that we are placed in – the alps – to practice and teach ways of working, which can be applied in other regions, too. The Master enables young creative professionals to design for sustainable practices of production, consumption and living. With this aim the design of products, interactive applications and communications are approached as an integrated task. Students learn to work on design projects equipped with a transdisciplinary set of instruments beyond design, gathered from social and environmental sciences, economics and business, technology and crafts. Teaching and learning are organized in in multidisciplinary projects, where theory and practice are integrated in order to deal with complex questions and develop effective "answers" through the means of design. The master's program works across several fields of design and provides possibilities to specialize in specific design disciplines, skills and/or areas of application. Students will collaborate in teams, in beautiful spaces, and with external experts and stakeholders. The Faculty provides an environment that fosters creative, personal and professional development. It offers state-of-the-art labs: from traditional crafts to rapid prototyping and physical computing, from carpentry to user experience.

Structure: MA

Content: eco social design, eco-social transformations, local developments and their interplay within global contexts,
Competencies: to design for more sustainable practices of production, consumption and living, approaching products, interactive applications and communications. Students learn to work on design projects equipped with a transdisciplinary set of instruments beyond design, gathered from social and environmental sciences, economics and business, technology and crafts, deal with complexity, transdisciplinary competencies, teamwork, creative, personal and professional development
Methods: interdisciplinary projects, Teaching and learning are organized in in multidisciplinary projects, collaborate in teams, in beautiful spaces, and with external experts and stakeholders, state-of-theart labs.

B 6 Course project management for sustainable development (Uni Gothenburg)

The course is given on an advanced level and assigned to be included in a Master degree in Earth Sciences and in a Master degree in Environmental Sciences, Faculty of Science. This course is also given as a single course subject. The course covers 10 weeks of full-time studies and consist of a large project assignment supported by seminars and lectures. Previous to the course, a term of reference for the project is formulated by the teachers and stakeholders in a specific local context in the Gothenburg region. The course is not divided into separate subparts, but can be described through seven phases:1. Planning phase, 2. Mapping phase, 3. Modeling phase, 4. Scenario identification and formulation phase, 5. Indicator identification and formulation phase, 6. Evaluation phase, 7. Report and presentation phase. The main object of this course is to identify, formulate and evaluate scenarios of sustainable development in a particular local context. The student learns and trains how to plan, carry out and present results from an investigated problem. Upon completion of this course, the student should be able to: obtained the necessary skills to plan a project with a definite deadline of 10 weeks in cooperation with other project members. This includes efficiency skills to divide tasks and responsibilities within the context of an interdisciplinary project team. interact with stakeholders and groups concerned with the problems at hand. select and implement relevant methods and approaches to understand and analyze actual problems within a given time frame. identify and use relevant indicators of sustainable development in order to evaluate existing and proposed development paths and scenarios. communicate (in day to day interactions, in presentations, and in the form of a project report) the objective, methods, results and recommendations of the project to different audiences, including public media.

Structure: course
Content: project management, sustainable development
Competencies: to identify, formulate and evaluate scenarios of sustainable development in a particular local context, how to plan, carry out and present results from an investigated problem, obtained the necessary skills to plan a project with a definite deadline of 10 weeks in cooperation with other project members, skills to divide tasks and responsibilities within the context of an interdisciplinary project team. interact with stakeholders and groups concerned with the problems at hand. select and implement relevant methods and approaches to understand and analyze actual problems within a given time frame. identify and use relevant indicators of sustainable development in order to evaluate existing and proposed development paths and scenarios. communicate
Methods: project assignment supported by seminars and lectures, experts

B 7 Sustainability challenge (WU Vienna)

The Sustainability Challenge is an inter-and transdisciplinary university course, offered at the four largest universities of Vienna, to connect the students of today and thus the decision-makers of tomorrow, with the issue of sustainable development. As an interface between science, business and politics the Sustainability Challenge aims at the cooperation of various sectors to achieve a just, viable and livable world. The fact that sustainable development can only work through interdisciplinary cooperation, let the Sustainability Challenge

arise as a solution and provides a way to comply with the international call for interdisciplinary. The program involves the University of Vienna, the Vienna University of Technology (TU), the University of Economics and Business in Vienna (WU) and the University of Natural Resources and Life Sciences in Vienna (BOKU). It is under patronage of the Austrian Commission of UNESCO and co-financed by the Austrian Federal Ministry of Science, Research and Economy. Each spring Semester the program is offered to 80 Viennese students and based upon the topics climate change, governance and ecological economics, sustainable building and renewable energy as well as social-ecological politics.

Innovative Design and Model Character

The Sustainability Challenge complements conventional university work by interdisciplinary working group assignments and the Service Learning methodology. A concept of experimental learning that links the classroom with local organizations and addresses needs in the local community.
Students should have a basic knowledge of the possible consequences of actions in their private and working environment. Therefore teaching and learning methods are based on the expertise of sustainability education - system, transdisciplinary, deconstruction, and discourse competence- and focus networking, circulatory and discourse learning.

Structure: course
Content: inter-and transdisciplinarity, cooperation of various sectors, sustainable development, teaching and learning methods are based on the expertise of sustainability education - system, transdisciplinary, deconstruction, and discourse competence - and focus networking, circulatory and discourse learning
Competencies:
Methods: interdisciplinary working group assignments and the Service Learning methodology

B 8 MA Sustainability Science (Leuphana University of Lüneburg)

Sustainable development is one of the major social challenges facing the twenty-first century - this much is beyond dispute. Yet, it still remains unclear in which direction, within which social and ecological framework, and by means of which strategy sustainable development can move forward. These questions form the starting point of our inter- and transdisciplinary research-oriented, and problem-focused Master's program **Sustainability Science**. A distinctive feature of the Sustainability Sciences program is its balance between sustainable natural sciences and sustainable humanities. Our goal is to look at social-ecological systems in an academically grounded and interdisciplinary manner. We will examine the processes which form the material and energetic basis for environmental sustainability problems as well as potential practical solutions from the perspective of sustainable natural sciences. In complex social-ecological systems these material processes are closely interconnected with economic, juridical, political, and cultural contexts as well as with strategies and practices of important social actors. These immaterial prerequisites and conditions of environmental sustainability problems and the way these problems are addressed are the subject of sustainable humanities. The program begins with an introduction which is themed to the disciplines of environmental and sustainability sciences. Common foundations of **natural and human sciences** are provided in the first semester's introductory modules. In the following semesters, students can select two modules to further specialize in individual disciplines of environmental and sustainability sciences. In compliance with the profile of Leuphana University of Lüneburg and, in particular, of the Faculty of Sustainability, the disciplinary course offerings of the program's area of integration are extended to include a transdisciplinary and problem-focused perspective: the two areas of specialization are combined into interdisciplinary and transdisciplinary modules in the form of project studies. The course offerings are complemented by a cross-disciplinary **Complementary Studies** program, in which students learn about general academic foundations reflecting on science, as well as by the area of **Master's Forum & Research Perspectives**. During one module per semester, the Master's Forum & Research Perspectives area prepares students for their own independent research work and provides them with fundamental methodological knowledge in sustainability sciences. Based on this intensive preparation phase, students complete their master's studies in the fourth semester by writing their **Master's thesis**.
The master's program in Sustainability Sciences provides an academically grounded education in environmental and sustainable research on the master level. The goal is to provide the theoretical, methodological, organizational, and communicative skills that are necessary to develop, realize, and reflect on one's own

disciplinary and interdisciplinary research work and projects in the field of environmental and sustainability sciences. In addition, the degree program aims at enabling students to function as change agents and initiate, promote, and manage processes of transition towards sustainable policies in economic, scientific, political, and civil organizations as well as to evaluate the processes' results and impacts. Depending on their individual academic profile, graduates will have a wide range of career options in sustainability-focused research (particularly in interdisciplinary and transdisciplinary research contexts). They will also have access to leading positions in business and consulting, public administration, national and international third sector organizations as well as political advising. Upon completion of the graduate study program, students are awarded the Master of Sciences (M.Sc.) degree.

The master's degree program is targeted at graduates with a bachelor's or equivalent degree, who wish to expand their academic knowledge of environmental and sustainability sciences. It is not required that your previous degree was completed in environmental or sustainability sciences, nevertheless basic knowledge in at least one of the fields of sustainability sciences is necessary. The basic modules offered in the first semester have a convergence function and, therefore, students must be willing to collaborate at interdisciplinary level. Admission requirements include, among other aspects, an above average transcript from the previous degree as well as adequate knowledge of the German and English language.

Structure: MA
Content: sustainable development, inter- and transdisciplinary research-oriented, and problem-focused, sustainable natural sciences and sustainable humanities,
Competencies: theoretical, methodological, organizational, and communicative skills that are necessary to develop, realize, and reflect on one's own disciplinary and interdisciplinary research work and projects in the field of environmental and sustainability sciences. In addition, the degree program aims at enabling students to function as change agents and initiate, promote, and manage processes of transition towards sustainable policies in economic, scientific, political, and civil organizations as well as to evaluate the processes' results and impacts.
Methods: interdisciplinary and transdisciplinary methods

B 9 MASTER IN COMMUNITY DEVELOPMENT/ Interdisciplinary European Master's degree course (Munich)

This course provides the students with the tools and skills to tackle the relevant theories, while acquiring and applying those methods and instruments when researching the development of local and regional areas. Academic discourse, how societies evolve and develop, concepts for a global society and, in particular, innovative solutions in the context of civil society, will all be investigated. A lot of areas that this course covers will, in the German speaking countries, break new ground. Both teachers and students will consciously be looking at and shaping what is a highly relevant area for our society. The structure of the course ensures that all of the modules provide possibilities for the students to focus on a particular area, while accommodating new societal trends and discourse methods. Where it is possible we look to establish a link between the theories that students learn and methodological practices that they acquire on the course and the professional know-how that they might have picked up during their working lives. Those questions, which the course participants have been confronted with during their professional careers can be processed within the framework offered by our research institutes, available and future dissertations and studies as well as through the development of our pilot projects. All of these undertakings will result not only in concrete links being established to the ongoing development that is taking place in the practical context but also to model situations within which the group can learn together. Theoretically based practical analysis: In Module part 2 the participants process an analysis of the competence that they have acquired during their practical training and write down their findings. Communication, Activation, Mediation: In Module part 3 the participants will acquire the competence needed to actively plan and develop a model for a community for the common good and they will then test this module during the course to see if it is practically viable. Socially orientated research: In the Module part 5 “Research Workshops” the participants will acquire the methodological tools to work on developments in the social sphere and to use their own practical knowledge to ask and answer the relevant questions. The development of community economy projects: An integral component part of Module part 4 is the conception and planning of a project or business according to criteria found in a community economy.
The course is conceived and planned as a modular, interdisciplinary course. It is particularly important to integrate and combine social scientific theories and methods with the theories and methods used in any of the following; the study of economics, town and regional development, social and economic geography, and emancipator community work. The detailed, specialist, and interrelated information, which the student will get from the course, will furnish him or her with the knowledge to act appropriately when looking for integrated solutions to local and regional problems and to the challenges posed by sustainable development.

Structure: MA

Content: development of local and regional areas, Academic access to area of research and the sphere of activity , Political and legal aspects, economic and social structures and the motivators in the community , Communication, mobilisation, Self-help und Self-organisation in the community , Organisation of projects and enterprises that cater to the needs of the community , Research workshops and own research center.

Competencies: looking at and shaping what is a highly relevant area for our society, a link between the theories that students learn and methodological practices, acquire the methodological tools to work on developments in the social sphere and to use their own practical knowledge to ask and answer the relevant questions, conception and planning of a project or business, Communication, Activation, Mediation.

Methods: Intensive seminars (on campus programme), Research workshops (on campus programme), Monitored self-study, Self-study, Supervised research praxis, Supervised project work, Processing of academic dissertations and other academic work

B 10 Social Entrepreneurship, Social Innovation and Sustainability (Malmö University)

The course focuses on social entrepreneurship, social innovation and sustainability and is structured in three modules:
The module 'SEI from a leadership and organisation perspective' covers an intensive lecture series covering the research and policy on social entrepreneurship, social innovation and related concepts such as citizenship, community, resource based theory and social capital. This module focuses on the leadership and organisational processes in social entrepreneurial organisations and partnerships especially in terms of public, private and social enterprises. The accumulation of knowledge serves students in the writing of an academic essay based on a literature review connecting social entrepreneurship, social innovation with sustainability.
The module 'SEI in Practice' is based on a series of guest lectures from the social entrepreneurial spheres and eventual study visits to bring the practice to the students for enabling them to reflect on what social entrepreneurship and social innovation are and how it is related with sustainability in concrete terms. *The module 'SEI for Sustainability'* is composed of a series of casework to integrate, apply and transfer the logic and thinking of social entrepreneurship and social innovation in the context of sustainability.
The aim of the course "Social Entrepreneurship, Social Innovation and Sustainability" is to provide students with a new orientation and way of thinking to organize and lead sustainable development namely through social entrepreneurship and social innovation. The course provides students with an understanding of the fields of social entrepreneurship and social innovation, which are rapidly gaining attention around the world from policy makers, organizations and others. As the traditional lines blur between non-profit enterprises, public services and business, it is critical that students understand the opportunities and challenges in this new landscape, which can be seen as highly relevant in the context of sustainability. The course aims at developing entrepreneurial skills and thinking frames for students who will lead sustainable economic, social and environmental projects in their future professions.
The course is included in the main area Leadership and Organisation at the advanced level of 91-120 credits. Students must have passed the course OL641E - Organizing and Leading Sustainable Organisations (7,5 credits). After a successful completion of this course the student will be able to: identify and describe principal models in social entrepreneurship and social innovation; outline the development of the main models and line of thoughts in social entrepreneurship and social innovation; identify, synthesis and classify the current research social entrepreneurship and social innovation and its relation to sustainability; define sustainability and sustainable development in the context of social entrepreneurship and social innovation in the context of nonprofit enterprises, public services and business; review, examine and contrast principal models, discourse as well the research in social entrepreneurship and social innovation; differentiate social entrepreneurship and innovation from business entrepreneurship but also differentiate their roles in sustainable developments, analyse and assess how social entrepreneurship and social innovation enable sustainability and how social entrepreneurs may act as change agents and apply and integrate social entrepreneurial skills and thinking to sustainability, sustainable development and to project management for sustainability, critically reflect on the contemporary literature and research within social entrepreneurship and social innovation and their relationship to sustainability, problematize organisations and leadership from a social entrepreneurship and a social innovation perspective in the aim of improving organisations to enable sustainability and sustainable development and in turn reflect on the roles of social entrepreneurs as change agents, critically reflect on sustainability and sustainable development in the context of organisation and leadership through a "social entrepreneur and social innovator" set of minds and reflect and improve his/her entrepreneurial capabilities and skills in the context of sustainability and sustainable development.
The course is evaluated through five examinations: One individual academic essay;Two case-based reports in pair/groups; One individual case-based report and the individual active participation at the case seminars.
The course is based on: A series of lectures, class discussion, guest lectures and potential study visits. The lecture series is developed to support learning in regards to the learning outcomes; Caseworks and case discussion. The case series is developed to support learning and Self-studies.

Structure: MA
Content: social entrepreneurship, sustainable development, sustainable organisations
Competencies: : identify and describe principal models in social entrepreneurship and social innovation; outline the development of the main models and line of thoughts in social entrepreneurship and social innovation; identify, synthesis and classify the current research social entrepreneurship and social innovation and its relation to sustainability; define sustainability and sustainable development in the context of social entrepreneurship and social innovation; review, examine and contrast principal models, discourse as well the research in social entrepreneurship and social innovation; differentiate social entrepreneurship and innovation from business entrepreneurship but also differentiate their roles in sustainable developments, analysis and assess how social entrepreneurship and social innovation enable sustainability and how social entrepreneurs may act as change agents and apply and integrate social entrepreneurial skills and thinking to sustainability, sustainable development and to project management for sustainability, critically reflect on the contemporary literature and research within social entrepreneurship and social innovation and their relationship to sustainability, problematize organisations and leadership from a social entrepreneurship and a social innovation perspective in the aim of improving organisations to enable sustainability and sustainable development and in turn reflect on the roles of social entrepreneurs as change agents, critically reflect on sustainability and sustainable development in the context of organisation and leadership through a "social entrepreneur and social innovator" set of minds and reflect and improve his/her entrepreneurial capabilities and skills in the context of sustainability and sustainable development.
Methods: series of lectures, class discussion, guest lectures and potential study visits. The lecture series is developed to support learning in regards to the learning outcomes; Caseworks and case discussion. The case series is developed to support learning and Self-studies.

B 11 Master's Program in International Business with Specialization in Sustainable Entrepreneurship (Business School Lausanne)

The BSL Master in International Business with specialization in Sustainable Entrepreneurship gives you a master's business degree plus future-oriented business and management knowledge.
This program option enhances your future career prospects in three important ways: a) your employability is increased in the NGO and nonprofit sector; b) business organizations with an interest in implementing sustainability will find your skills and knowledge set of high relevance; and c) you will be well equipped to start your own business or join a start-up company either in the traditional for-profit domain or in the fast-growing area of social entrepreneurship.

Structure: MA Specialization
Content: Sustainable Entrepreneurship, future-oriented business and management knowledge.
Competencies: Understand what sustainability means for business; Explore emerging opportunities for business and social entrepreneurs in the area of sustainability, Systemic problem-solving skills necessary to contribute to addressing complex environmental, social and economic challenges both globally and regionally, Strategic and critical thinking in evaluating market and business opportunities, Solid project management skills to professionally handle a large variety of emerging issues,Risk assessment in complex and fast changing environments and Tools for effective industry and market research in turbulent times

B 12. Sustainability, Entrepreneurship and Design MSc (Brunel University London)

The results of unsustainable human development in the 21st century are evident as climate change, species extinction, pollution, poverty and inequality become inescapable global realities. The next big challenge for society is to transform our economy to incorporate the principles of sustainability. This presents an exciting opportunity to rethink, redesign and rebuild a positive future for business practice.
The "MSc in Sustainability, Entrepreneurship and Design (with Professional Development)" is an 18 month program – 12 months for the study at Brunel followed by a 6 month professional development phase. There is an option to complete the "MSc in Sustainability, Entrepreneurship and Design" in 12 months (without the professional development phase) but students will be encouraged to engage with the professional development phase to achieve the maximum from the program.
Compulsory modules: Introduction to Strategic Sustainable Development, Entrepreneurship, Business Planning, International Business Ethics, Sustainability and Corporate Governance, Sustainable Design, Professional Design
Studio. Optional modules (choose any two):Biosphere, Clean Technology, Environmental Law, Responses to Climate Change, International Business Strategy, Logistics and Supply Chain Management, Design Innovation Futures. The program has a number of innovative features: The fusion of environmental education with design, entrepreneurial and business skills. The program will include guest lectures from world leading experts in Sustainability. Principally, Professor Göran Broman (founder of the Framework for Strategic Sustainable Development) of the Blekinge Institute for Technology in Sweden, and Professor Karl-Henrich Robért (Blue Planet Award winner and founder of the Natural Step - a global alliance centered around sustainability). Furthermore, Professor Terry Collins (Institute of Green Chemistry, Carnegie Mellon University, USA) will deliver program-material on green chemistry. Structural flexibility - so that the needs and desires of individuals can be met through offering optional modules within various themes relevant to sustainable enterprise (in the Business or Design Schools or in the Institute for the Environment). Practice based assessments - for example, the development of a detailed business plan for those who wish to start their own business, a product design for those taking the designer/innovator route, or a research proposal for those wishing to pursue a career in research or bid writing. Professional development activities - following the multidisciplinary learning program, students will undertake a six month professional development activity in which - for example - they will undertake an internship or start their own business. (The provision of incubator space for these students will be an integral part of the MSc and is another distinctive feature of the program. The students will also be equipped with pitching skills and a business mentor). The program will be delivered beginning with an overview of core concepts and followed by progressively deeper consideration and application of the concepts later on through a self-directed learning approach. The program is structured to provide leadership opportunities and move progressively from learning the "rules of the game" to "playing the game". This means that as the program progresses it becomes less instructor-led and more student-led where students direct their learning towards their own needs and tap the collective wisdom of the group via project work. There will be four integrated streams: Ecological and sustainability theory, Leadership, Design and Innovation, Business planning and start up.

The benefits of this combination will be unique; students will be cross trained, drawing upon the resources of a world class university. They will develop three complementary networks of peers and alumni and engage in Brunel's collegiate experience, interacting with students and faculty from three corners of the university. Through this combination, graduates will able to enter the professional arena with an energetic and inspired approach to societal change.
Assessment: Integrated coursework on core sustainability & business, and sustainability & design module content, Formal written examinations, Individual and Group coursework assignments, Oral and Poster presentations, Dissertation in the form of a Business plan, product design or research proposal, Reflective Portfolio (for optional 6-month Professional Development period).

Structure: MSc

Content: Ecological and sustainability theory, Leadership, Design and Innovation, Business planning and start up, Strategic Sustainable Development, Entrepreneurship, Business Planning, International Business Ethics, Sustainability and Corporate Governance, Sustainable Design, Professional Design Studio

Competencies: deep scientific knowledge for strategic planning towards a sustainable society , including ecological theory and sustainability design principles, Innovation, creativity and team working

skills, Experiential learning and mentorship from leading entrepreneurs and business leaders, Communication skills to enable working with members of engineering, design and marketing teams, Leadership skills, Intensive corporate exposure, Career paths as sustainability, practitioners in business, academia, government, and community organizations, Business startup opportunities, Membership of the Made in Brunel Sustainable Business alumni, an elite group of successful entrepreneurs and their mentors, Additional support to enhance your employability skills beyond the MSc through the Business Life Program

Methods: the program progresses it becomes less instructor-led and more student-led where students direct their learning towards their own needs and tap the collective wisdom of the group via project work.

B 13 Eco-Venturing – Development of sustainable business concepts for "green" future markets (University Oldenburg, Germany)

This module is intended for students interested in start-ups and innovative solutions in the field of sustainable economics. Those in the SEM Master's Program may choose this module to satisfy the elective module 4 requirement.

The main focus of the Eco-Venturing module is the development of new or established business start-up concepts. Under of guidance of their lecturer, participants will work together with selected regional business partners who are both economically successful and contribute to the protection of the environment and the climate, to promote such start-up concepts. What these concepts have in common is that they address the issue of sustainability.
It is part of the Eco-Entrepreneurship major study course. The course consists of four sessions that students have to attend and further sessions by prior arrangement
Kick-off event (1,5 days): Presentation of start-up/business concepts by business partners, formation of student teams, provision of basic knowledge on start-up/project management and ecological evaluation, project planning by teams of students
Interim presentation: Presentation of interim results (e.g. rough draft of business model, market analysis, ecological evaluation, etc.) by the team of students
Final presentation: Presentation of final results (e.g. business model, sections of a business plan, recommendations, next steps) in the presence of business partners
For the rest of the time the students work very autonomously and cooperate with their business partner. They get support and coaching by the team of lecturers. At the end there has to be a final report: Documentation of the origination of the business model, methodology, presentation of the results (including ecological evaluation). After the project course: Forwarding of start-up plans to business start-up consultancies and support institutions (e.g. Founding and Innovation Center of the University of Oldenburg, VentureLab or the Technology and Business Start-Up Center Oldenburg)
The target group are master students from business and/or environmentally related studies: The course is mainly geared to students doing master's degrees in economics and law (specializing in Management, Entrepreneurship, Controlling (ManECo)) as well as master's degrees in Sustainability Economics and Management. However, students from other faculties such as business informatics, integrated media or environmentally related master's degree programs can also complete the module.
The general aims of the project are: promoting sustainable business start-ups, focusing on real problems, to develop a workable business model that includes action recommendations for the business partners. Prior to participation of business partners they have an agreement on the issue of exploitation rights and sign corresponding non-disclosure agreements if necessary

Structure: Module

Content: sustainability, sustainability-oriented business concepts, all areas of sustainable business management, start-up and innovation management, key basic knowledge on entrepreneurship and ecoventuring, strategy development, topics such as renewable energies, renewable raw materials, energy and resource efficiency or climate mitigation or adaptation solutions, ecological and sustainability-oriented evaluation of start-up ideas.

Methods: Lecture and presentation, Project work in teams and with business partners: development of a business concept with the aim of promoting actual business start-ups, Coaching, Writing final reports, business partners together with students work on new business concepts

B 14 NPO-Competence Center (WU Wien)

The institute had worked scientifically as an association for nonprofit organizations since 1997; on 1 January 2011, it was changed to the current NPO-Competence Center. It combines research and practice and works on a wide variety of subjects relevant to NPO's across various disciplines. High scientific quality is equally important as intensive exchange with practice. The center achieve both through a well-balanced service portfolio: "Near-practice research" and fundamental research, dialogue with parties with a practical background (workshops, symposia, NPO jam sessions) and participation in research networks. Owing to the close cooperation with the University of Economics and Business of Vienna and the competences of the people working at the NPO-Competence Center, there has traditionally been a strong focus on issues relating to business administration, management, economy, sociology and social politics. It works on problems and issues that are relevant to both small and big NPO's and see ourselves as competent and fair partners in all research matters. Moreover, the NPO-Competence Center enjoys diverse work contacts to different NPO's thanks to the large number of projects it has carried out in the area of NPO research. Also, about 300 NPO's are among the members of the association, which is still operating as a benefit society. Thanks to this, the center can reach target groups that are normally difficult to contact, among other things. With the emphasis on practical research at the NPO-

Competence Center offers the implementation of research projects with practical relevance and with a high standard of quality in research. It adopts research areas of real-world relevance and achieve our tasks in close cooperation with students. In an initial step the center collects as much information concerning the research question as possible. On the basis of this information they provide an offer free of charge and with no obligations. The offer includes an action plan, a time schedule and a cost calculation. The NPO-Competence Center combines high-quality research with practice-relevant topics. We offer comprehensive know-how concerning the non-profit sector, as well as: competence in business administration, competence in economics, competence in the social sciences and competence in empirical methods.

Structure: Competence Center
Content: focus on issues relating to business administration, management, economy, sociology and social politics (practice-relevant topics).
Competencies: to dialogue with parties with a practical background, participation in research networks, competence in business administration, competence in economics, competence in the social sciences and competence in empirical methods.
Methods: Near-practice research, workshops, symposia, NPO jam sessions

B 15 Entrepreneurship Avenue (WU Vienna)

Entrepreneurship Avenue is Austria's largest startup event series for students. It's a journey through entrepreneurship that starts with a series of 4 Lab sessions and ends with a one-day Conference. The Entrepreneurship Avenue LAB, generate business ideas with the help of our mentors and coaches, or get the hang of how to spot a really good one. What is more, founders from various universities and alumni from the last years will get together to share their inspiring startup stories. The keynote on "entrepreneurship is freedom" will further help to get started the own entrepreneurship journey. The avenue offers additional

events to deepen the connections within the team, get advice on legal issues, help you understand the CANVAS Business Model by working on a real business case. The conference finally brings together students who want to take their future in their own hands. The conference brings together founders, investors and a wide mix of people who have lived up to their dreams. **Structure**: Labs and conference
Content: start's up, entrepreneurship
Competencies: self- organization, generate business ideas, get advice on legal issues, help you understand the CANVAS Business Model by working on a real business case
Methods: Labs, conference, coaching, mentoring, sharing ideas (platform), events

B 16 Incubator of green business plans (EkoInkubátor) (Uni Brno)

Project EkoInkubátor (2009-2012) - Department of Environmental Studies, Faculty of Social Studies, Masaryk University, Brno, Czech Republic. The project aims to motivate students to establish their own environmental oriented business. The project will offer courses that prepare students to start a private business and also enable them to acquire knowledge necessary for business with a positive environmental impact. According to Masaryk University research is the number of graduates, who start their own business, very small - only around 4%. The structure of our project should increase both knowledge (economic for students of non-economic fields, environmental and law knowledge for economists) and students' motivation to business. Potential students interest in the business environment can demonstrate issues such as theses and dissertations in recent years and involvement in EkoInkubator project in 2006-2008 (OP RLZ 3.3.2). Connection of business and conservation support the growing market opportunities in this field. The project is designed for students at Masaryk University and in the case of so-called Summer school for other university students from selected regions. EkoInkubator is a three-semester study block divided into three periods. The first part provides basic information and knowledge useful to implement own environmental business plan. During the second part students visit Czech and foreign environmental entrepreneurs and learn about their successful projects. E.g.: Centrum Veronica Hostětín (http://hostetin.veronica.cz/en) – village Hostětín where are model projects for how to start building a sustainable future, Autonapůl http://www.autonapul.org/en/#page-home) - the first Car-sharing association in the Czech Republic, Bio-fruit-farming of Zdeněk Ševčík in Pitín (no english web page), Sonnentor (http://en.sonnentor.com/), FAXI (http://www.faxi.at/) - first Vienna bicycle-Rikscha-Taxi, R.U..Z. – (http://www.rusz.at/) – eco-social business in Vienna. In the final third part, in cooperation with other students under the leadership of coaches students prepare their own green business plan. The aims of the project are: All graduates of the projects should learn and get basic knowledge in economics, law and environment to create their own environmentally oriented business plans; organize a summer school EkoInkubator for at least 60 students from Czech universities; Increasing employability of MU students, Improvement of two accredited programs: "Environmental Humanities" and "Business Management" at the Faculty of Social Sciences and the Faculty of Economics and Administration MU. It also increases the number of courses taught by modern pedagogical methods (simulation, role playing, E-learning); to provide students of non-economic specialization basic economic and law knowledge which requires to start up their own businesses. Thereby enhancing the competitiveness of this target group in the labor market. Students of economic, legal and other social science disciplines provide basic environmental knowledge and render them into environmental issues.

Structure: project
Content: environmental oriented business,
Competencies: teaching theoretical courses (e.g. marketing, environmental ethics, ecological economics etc.), teaching practical courses (fundraising, creating environmental business plan etc.), field trips (visiting successful environmental businesses), coaching by experts from law, finance,

environment, business, teamwork (creating environmental business in groups), e-learning eg. through the course project management, simulation (creating real business plan).

B 17 Studium Generale (UNIBZ)

This is a new integrated, interdisciplinary study course, offered since the 2011/2012 academic year, as part of the European lifelong learning initiative. Basically it is a course that makes the most of the knowledge provided by the various faculties and brings that together with the experience and knowledge of the participants. The Studium Generale course is aimed at young people who have not yet decided what they want to do in their future, university students who want to increase their general knowledge and culture, participants of all ages who have an interest in specific subjects and others who wish to develop their understanding of various subjects for their professional activities.
The Studium Generale course aims to satisfy modern educational needs using an approach to study inspired by the medieval traditions that brought about the founding of universities, where lessons were held in public spaces for anyone who was interested.
Structure: Study Program (includes the whole University)
Content: Interdisciplinary, lifelong learning,
Competencies: trans generational learning, interdisciplinary learning.
Method: approach to study inspired by the medieval traditions that brought about the founding of universities, where lessons were held in public spaces for anyone who was interested

B 18 Conference and Summer School "Science for Society- transformative science, participatory research and social innovation " (Unibz)

Complex research questions need an interdisciplinary approach. But before the background of global and Eco social transformation processes even interdisciplinary approaches show their limits. These challenges require not only the integration of knowledge an methods of different disciplines, but also the inclusion of local actors in order to promote new forms of cooperation between science and society. Concerning this, experts speak about praxis oriented and participative research (Mode 2) or transformative research. Following the scientific advisory board of the German government „global environmental changes" transformative science has a central role in facing the challenges of the 21. Century and enhancing solution oriented approaches. This kind of research is highly demanding. It requires a new role model of researchers, a specific ethic of research, the development of participatory research settings, appropriate Methods- and Integrations models, different knowledge and more. Furthermore transformative research stands often in contradiction to scientific institutions, career oriented standards and scientific support logic.
The conference and summer school „Science for Society- transformative science, participatory research and social innovation" deal with innovation potential, limits and prerequisites of transformative research and the question how this new approach can be integrated in the reputation system of science. For this reasons, a number of experts from natural science, social science and represents of the research support are invited to face this questions and challenges. The knowledge is shared by presentations, discussions and the presentation of international research examples which deal with transformative challenges.

Structure: conference, summer school
Content: Transformative science, interdisciplinary, transdisciplinary research, global transformation processes, challenges
Competencies: transformative approach in science, recognize future challenges, deal with complex research questions.
Methods: experts, lectures, praxis examples of transformative research, interdisciplinary summer school for PhD students.

B 19 SUSTAINICUM (BOKU Vienna)

SUSTAINICUM is a cooperative project by the University of Natural Resources and Life Sciences, Vienna, the University of Graz, and the
The project aims to advance topics in university teaching that are relevant
to sustainability from the perspective of diverse disciplines. For this purpose a platform was developed where a variety of different types of resources can be collected and displayed. These resources (Building Blocks, Teaching Methods, Lecture Notes and Teaching Modules) should support teachers both in terms of content and through the practical application of innovative teaching methods, as well as promote systemic and holistic thinking. Teachers can submit their own resources on a rolling basis in order to make them available to other colleagues.
A focus on ecologic and natural scientific aspects should also stimulate interest, particularly among female students, for the MINT disciplines of mathematics, informatics, natural sciences and technology.
The objective of the SUSTAINICUM project is the advancement of sustainability-relevant topics in university teaching from the perspective of different disciplines.
A particular focus is on the fields of climate, energy, resources, growth, resilience and risk, as well as aspects of education and lifelong learning, sustainable urban and regional development, health and quality of life, human rights, and mobility.
The main task of the project is the development of an open pool of teaching support instruments.
Building Blocks are topically limited units (such as experiments, computer simulations, games and small projects for students) that aim to make terms, processes and interrelationships that are relevant for sustainability more tangible and understandable. The focus here is on tools that are as easy to understand as possible and only require a small amount of time.
Teaching Methods provide information on modern ways to activate students, integrate innovative forms of teaching and, in so doing, help students to develop and anchor their knowledge as well to acquire skills. **Lecture Notes** for lectures with a connection to sustainability complement the pool of resources with a focus on content.
Teaching Modules are didactically and methodologically mature teaching concepts for the communication of sustainability-relevant content and skills and range from teaching units, courses and course blocks to comprehensive curricula and concepts for summer schools.
Cross references between these resources help with the creation of new courses whether dealing with pedagogical and didactic methods or larger concepts regarding curricula.
The resources on this platform are freely available for use in teaching and planning. Teachers can on one hand utilize the existing resources or on the other hand also make their own materials, methods and concepts regarding sustainability-related topics available.
Structure: cooperative project
Content: sustainability-relevant topics in university teaching from the perspective of different discipline
Competencies: activate students, integrate innovative forms of teaching and, in so doing, help students to develop and anchor their knowledge.
Methods: Building Blocks, Teaching Methods, Lecture Notes, Teaching Modules (see description).

B 20 Virtual Academy for Sustainability (Uni Bremen)

The Virtual Academy of Sustainability supports German Higher Education Institutes in reaching the goal of the UN-Decade by offering an innovative teaching concept based on video courses. The courses can be used from all German Higher Education Institutes or their lecturers. The video based courses are designed in a way that they are useable for optional courses, “General Studies”, “open studies” or specialization modules or certificates. The validity prove can be completed in any Higher Education Institute. The Virtual Academy of Sustainability is aided by the German Environment Foundation (DBU) and is coordinated by the University of Bremen. The building and the realization of the Academy happens by the Centre of Multimedia Teaching (ZMML) of the University of Bremen and the Professorship for Sustainable Management at the University of Bremen. The strategic direction and the program of the courses of the Academy are discussed by the board of management: Prof. Dr. Gerd Michelsen, Prof. Dr. Uwe Schneidewind and Prof. Dr. Georg Müller-Christ. In teamwork with other experts and to safe the quality of the further development the board of management organizes the evaluation of the courses. The Virtual Academy of Sustainability is co-working closely with several

well-respected scientific institutions in Germany, e.g. the Wuppertal Institute for Climate, Environment, Energy, the German Advisory Council on Global Change (WBGU) and the UNESCO-Chair for Higher Education for Sustainable Development of the Leuphana University of Lüneburg.
All courses are freely available. In addition to the videos you can use other learning material that can be found at our learning platform as well as getting in contact with the academy team.
Students get competences in creating a sustainable development, be prepared for future challenges. eLearning as well as in handling with digital media. The students of the Academy can choose when and where they want to learn and in their own speed. Students can build their own process of study and use the offers of the Virtual Academy of Sustainability as addition or extension for your common study. All video based courses are continuously available at any time on the website of the Virtual Academy of Sustainability. Therefore, a specific repeating, making up or deepening is possible. The courses are produced with well-respected lecturers with sustainable teaching background, so you can revert to a wide expert knowledge. All lecturers are professional recorded. The recording is characterized by highly audio and film quality. Based on the longtime experience of producing learning videos, the allocation of a broad range of course offerings can be given.
Structure: Virtual Academy for Sustainability
Content: sustainability, sustainable development
Competencies: in creating a sustainable development, be prepared for future challenges. eLearning as well as in handling with digital media. **Method**: platform, self-study, e leaning

B 21 MA Complex Decision/ Komplexes Entscheiden (Uni Bremen)

The study program will be interdisciplinary (law, political science, economics, philosophy). Comprehensive skills will be taught to solve problems in complex decision situations, a special emphasis is placed on a practical implementation of the imparted knowledge.
In public institutions the decision-making behavior and the patterns of the enforcement of decision are guided by rationales that can conflict with each other. Political opportunism, administrative postulates, efforts towards economic efficiency and legal frameworks seem to directly collide with each other. This leads to a paralysis of the system in many areas. Institutions meet their main functions within state and society not to a full extent. The legitimacy of the decision makers recedes. Resources for many governmental and social tasks are lacking. Decisions that are then made in a way of resignation solutions are drawn from improper compromises or situational constraints. They are often counterproductive and a result is that many key problems of modern society and its institutions are not solved or even addressed. Thus it requires well-trained decision-makers who have in complex decision situations a sense for diverging needs and demands and for the different dimensions of the results of their actions. The training of decision makers who develop their own evaluation criteria in order to solve existing dilemmas, and who create new alternatives for solutions, and who can make, realize and communicate their decisions in accordance with situations, problems and stakeholders is necessary. The master's program Komplexes Entscheiden (Professional Public Decision Making) therefore focuses on multidisciplinary expertise in order to develop comprehensive skills for complex decision-making situations of junior managers in public institutions. This includes, in addition to analytical skills, normative authority as much as communication skills. Because of the substantive and methodological complexity of decisions in public institutions philosophical, economic, political, cultural and legal analysis of issues, their solution concepts and implementation approaches will equally be discussed. Besides the teaching of theory also its practical application is in the centre of the curricula.

Structure: MA
Content: Complex decisions, interdisciplinary
Competencies: to develop comprehensive skills for complex decision-making situations of junior managers in public institutions, analytical, communication, normative skills. **Methods**: Projects, interdisciplinary teams, lectures (teaching theory).