



HEInnovate Reviews

Universities, Entrepreneurship,
and Local Development

BULGARIA 2014



**Promoting Innovation
& Entrepreneurial
Mind-sets through
Higher Education**

**HEINNOVATE REVIEWS ON
PROMOTING INNOVATIVE AND ENTREPRENEURIAL HEIS**

COUNTRY-LEVEL REVIEW BULGARIA

EXECUTIVE SUMMARY

*Prepared by the Organisation for Economic Co-operation and Development in collaboration with the
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EXECUTIVE SUMMARY

The context of the study

Across Europe and the wider OECD area there are growing signs of a transformation of the 'traditional' model of a university, which focuses its efforts on teaching and research, towards an innovative and entrepreneurial higher education institution (HEI), which is designed to empower students and staff to demonstrate enterprise, innovation and creativity in teaching, research and third mission, directs its activities to enhance learning, knowledge production and exchange, in the dedication of creating public value via processes of open engagement (HEInnovate, 2014).

The entrepreneurial university concept was developed in the early 1980s and was used as a method to examine the ways in which HEIs contribute to wealth creation and sustainable growth. Many attempts have been made to define the concept, but a single, generally accepted consensus has yet to arise. Whilst this renders it difficult to use the concept for research purposes, it turns it into an excellent lever for HEIs to guide and steer their organisational change processes.

The higher education system in Bulgaria is undergoing a significant change process. Access to higher education has been eased and has raised enrolment rates. At the same time, HEIs are confronted with multiple challenges: growing rates of graduate under- and unemployment, attractive study options abroad, and largely underdeveloped links with businesses. These challenges are pressing HEIs to change.

There are several promising change initiatives across the 51 HEIs in the country. Often these are, however, the result of time and efforts invested by motivated individuals without sufficient and sustainable resources to reach wider impacts. At system level research collaboration, co-construction of study programmes, the organisation of internships and practice-based learning are often limited to single projects which lack sustainable structures and resources that could spur a dynamic change process in the higher education system.

To facilitate this change process, the Ministry of Education and Science of Bulgaria approached the European Commission Directorate General for Education and Culture and the Organisation for Economic Co-operation and Development in January 2014 with a request to undertake an external review of the barriers, challenges and opportunities in the higher education system. This started a one-year collaborative review process which included an in-depth peer-review of five case study universities in March and May 2014, an online survey of leaders and students in the period May to September, and a final workshop – involving all HEIs – to discuss the findings of the case study peer-reviews and the surveys, organised in Sofia in the end of September 2014.

This report summarises the key findings and recommendations resulting from this review process. It also presents international learning models, which provide exemplary illustrations of how to implement effective strategies and actions.

Review methodology

The methodology for this review is based on HEInnovate, a guiding framework for innovative and entrepreneurial HEIs. HEInnovate was collaboratively developed by the European Commission, Directorate-General for Education and Culture and the Organisation for Economic Co-operation and Development (OECD) through its LEED Programme (Local Economic and Employment Development).

A background report was prepared to provide an overview of the higher education system in Bulgaria, as well as regional and local economies, labour market and demographic characteristics and trends, and profiles of the case-study HEIs. Key findings from the background report were discussed with the Ministry of Education and Science and five case study HEIs in a kick-off meeting. The report was used to prepare for the study visit and sections of the background report have been incorporated in this report.

An OECD-led team of international higher education and entrepreneurship experts visited five HEIs in March and May 2014 to conduct in depth interviews with university rectors, professors, staff involved in start-up support activities, students and other stakeholders in the local entrepreneurship support system. More than 140 people were interviewed. The five HEIs covered in the two study visits were:

- University of Economics in Varna
- University of Forestry in Sofia
- University of Mining and Geology "St. Ivan Rilski" in Sofia
- University "Angel Kunchev" in Ruse
- Technical University of Sofia

An intermediate report was prepared on the findings from the study visit. The report was structured along the seven dimensions of HEInnovate and presented findings for each of the 45 statements. The intermediate report was translated into Bulgarian and circulated for comments to all interview partners. The aim of the intermediate report was to provide detailed feedback with the aim to stimulate a debate around the HEInnovate statements and to help the case study HEIs to establish a baseline for a continued utilisation of the HEInnovate self-assessment tool (www.heinnovate.eu).

An online survey of HEI leaders was used to complement the information obtained in the background report and the study visit. The questionnaire, available in Bulgarian and English languages, was sent to all HEIs in Bulgaria. A total of 20 HEIs (14 public and six private) participated in the survey in the period June to August 2014.¹ A separate questionnaire was sent during the same period, to students across all HEIs. 367 students from 23 HEIs participated in the survey and answered questions about work experience and future job expectations. In a second part respondents were asked about their entrepreneurial intentions ("Have you already thought of starting-up a business), and their experiences and satisfaction with entrepreneurship education and start-up support measures. 196 students completed the second part of the questionnaire.

¹ Burgas Free University, Medical University – Plovdiv, Higher School of Civil Engineering (VSU) "Lyuben Karavelov" – Sofia, University of Library Studies and Information Technologies – Sofia, European College of Economics and Management in the town of Plovdiv, N.Y.Vaptsarov Naval Academy – Varna, Varna Free University "Chernorizets Hrabar", Prof. Assen Zlatarov Burgas University, University of National and World Economy – Sofia, Academy of the Ministry of Interior – Sofia, South-West University "Neofit Rilski" – Blagoevgrad, International College – Albena, New Bulgarian University – Sofia.

Finally, to discuss and review the findings from the in depth review of the five case study universities and the two surveys with the entire HEI community in the country, a workshop was organised on 25-26 September 2014 in Sofia. Representatives of more than 30 HEIs and key organisations of the entrepreneurship ecosystem attended the workshop.

Key findings

Absence of a clearly defined role for HEIs in promoting innovation and entrepreneurship

Various policy documents and operational programmes refer to the role of HEIs in Bulgaria's emerging knowledge economy from skills development and lifelong learning, research, development, start-ups, innovation and smart specialisation. However, there is no common policy framework that brings together these different strands of measures and clearly defines the role of higher education in promoting innovation and entrepreneurship. The new strategy on higher education, which was recently adopted, is expected to increase coordination efforts.

Narrow understanding of the innovative and entrepreneurial HEI concept

The current understanding of the innovative and entrepreneurial university – in the HEI community – is focused on the promotion of start-up activities, primarily targeted at students. Organisational capacity, stakeholder links, internationalisation, and leadership are not yet associated with the concept.

Marginal involvement of HEIs in smart specialisation

The involvement of HEIs in the smart specialisation process (S3) so far has been only marginal. As a result, HEIs are not fully aware of the funding opportunities and requirements. Only few universities have taken on an active role in local development, for example by defining strategic objectives and starting or leading key industry clusters. Information about these examples is, however, not widely available for the wider HEI community and cannot be found on key communication channels such as the Rector's Conference website.²

'Separation' of teaching and research

The separation of teaching and research, established during the Communist era, left lasting footprints. Research activities, especially in basic research, are still largely taking place in the Bulgarian Academy of Sciences. Universities have difficulties in absorbing institutional research funding, although some are very successful with project-based research financing and in establishing themselves successfully in the country's emerging innovation system.

Knowledge exchange is not yet part of the core-strategy of HEIs

Many knowledge exchange activities of HEIs with business and other external partners are focused on individuals, for example collaboration between researchers in HEIs and researchers in local companies. Without clear and vocal leadership promoting collaboration, knowledge exchange risks to be a matter of personal motivation rather than being 'part of the job'. Benefits from the high number of projects (often co-financed by the European Union), which provide the opportunity of a salary increase for individual staff members, risk remaining constrained to individual benefits with little or no spill-

² At the time of this report, the last update of the website was in March 2014.

overs to the HEI as a whole. Also, the legal framework for public private partnerships and public procurement has still some open issues, which render business collaboration difficult for HEIs.

Difficulties in the organisation of internships

Organising internships is difficult in a threefold way, in terms of: (i) finding a place, (ii) guidance and support during the internship, and (iii) the latter's relevance as learning experience. When searching on their own for internship places, many students encountered situations where firms said "we sign the internship report for you, but we are not interested in having you as an intern". Only students who found an internship through their professors had a contact person to reach out to during the internship for advice. Firms argue that students are not interested in practical learning, and students criticise that there is no learning and that they get overloaded with routine tasks. Entrepreneurial project work, co-designed by students and their tutors, is rare. Furthermore, there is no structured reflection of internship experiences in class. Students talk about this in their free time or, in the best case, extra-curricular activities.

Systemic barriers in raising the attractiveness of HEIs

The number of newly enrolled students is decreasing, and reaching 'critical mass' has become a serious issue for several HEIs. The number of students opting to study abroad is increasing. The unfilled surplus of 8,000 study places (11.3% of the total offer) in the academic year 2014 risks becoming a recurring phenomenon.

Average numbers of students are between 6,200 for public HEIs and 3,500 for private HEIs. The University of Sofia "St. Kliment Ohridski" is with 21,000 students the outlier, followed by the Technical University of Sofia, which is with 9,200 students the second largest HEI. Co-operation between HEIs remains low and there are examples of spurious competition in establishing faculties, departments and study programmes. The number of PhD programmes per university is very high (on average between eight to 15 programmes). There is a risk that the offer of PhD programmes serves as an additional source of income rather than a way of broadening research activities.

There is an urgent need for re-organisation towards more collaboration between HEIs and more joint utilisation of infrastructure and resources. The aim should be to build a well-functioning system that allows and caters for diversity, so that institutional-level priorities and goals can be realistically set and achieved within the wider system-level strategic objectives.

Accreditation concerns separately institutions and study programmes. Activities to promote entrepreneurship as a key competence are not considered in the accreditation process. Currently the composition of the evaluation panels, mostly professors working at HEIs in the country, presents high potential for conflict of interest. Foreign academics and key local and national stakeholders e.g. employers and research partners, have not yet been included in the teams.

Tailoring study programmes to the needs and arising opportunities in the local economy is burdensome and costly. Adjustments during the accreditation time are difficult to organise, and there is a tendency to apply with study programmes that are similar to programmes already accredited at HEIs elsewhere in the country. There is some collaboration on co-designing curricula but this is not yet part of a systemic approach. The focus seems to be more on lifelong learning activities and less on study programmes. Interdisciplinary activities, which are open to students from different faculties, are often limited to extra-curricular activities.

Although the Higher Education Act allows for the establishment of joint and double programs/degrees is arranged in the, currently less than 10% of HEIs in the country participate in joint programmes, whereas in neighbouring Romania up to 75% are participating in international study programmes.

Barriers to up-scale entrepreneurship promotion in HEIs

Many individual academics in Bulgaria promote entrepreneurship in their HEIs and participate in research conferences in the country and abroad. However overall, entrepreneurship promotion has not yet become a matter of strategic interest for HEI leadership. There are some HEIs where motivated individuals receive recognition and support for their commitment and additional work, but only very few HEIs actually have rectors who consider themselves as "entrepreneurship champions".

Missing links to the entrepreneurship ecosystem

The entrepreneurship ecosystem in Bulgaria is quickly developing. Eleven and LauncHub are seed venture capital funds, which provide support for individuals and teams to develop innovative ideas from very early stages on. They are well known amongst the student community. Start-up weekends are also regularly organised in several cities across the country. Yet links with the HE system are rare.

Key recommendations

Recommendations are presented separately for the Ministry of Education and Science and the Rectors Conference – as key actors in defining the national higher education framework – and HEIs.

The Ministry of Education and Science is recommended to:

Establish a national-level HEInnovate committee which includes senior representatives from the ministries of education and science, economics, and labour and social affairs, the Rectors Conference, and the main economic actors (Chambers, etc., entrepreneurship ecosystem). The objective of the national-level HEInnovate committee is to (i) promote the concept of the innovative and entrepreneurial higher education institution, (ii) identify key national challenges and opportunities in the higher education system with regard to the seven dimensions of HEInnovate, (iii) propose actions, and (iv) to monitor and evaluate pilot projects for a potential mainstreaming. The establishment of working groups, involving HEI representatives, should be considered.

To trigger innovation in the higher education system and to sustain already existing promising initiatives, the creation of a HEInnovate Fund, co-financed with ESIF funding is proposed. The HEInnovate fund should provide co-financing for pilot projects, proposed and implemented by HEIs in Bulgaria. The allocation of co-funding shall be competitive. Key areas of fundable projects should be defined by the national-level HEInnovate committee, taking into the findings and recommendations from the HEInnovate country-level review. Further it should be considered to include HEInnovate in the key performance indicators, applied by NEEA and the University Ranking.

Develop an easy-access system of fundamental business start-up support for academic entrepreneurs. Would-be-entrepreneurs need to know what to do and where to go. Entrepreneurship centres and co-working spaces can be first-stop shops. Key to this will be more institutional links to the entrepreneurship ecosystem.

The HEInnovate Fund should become the main vehicle to promote and sustain organisational change in HEIs. It is understood that some of the following recommendations require higher-tier level support to be fully implemented.

The recommendations for HEIs are:

1. ***Review and reformulate the university strategy documents in light of current challenges and possible responses.*** This will also imply building a common understanding of what the concept of an innovative and entrepreneurial HEI means to a particular HEI and its socio-economic situation context.
2. ***Establish a senior management post (e.g.) vice-rector in charge of the innovative and entrepreneurial agenda.*** To steer and sustain the innovative and entrepreneurial agenda, HEIs should establish the position of a senior management post or Vice-Rector who will be responsible for entrepreneurship, organisational change and interaction with the local community. In addition a "Strategy Council" should be established, which includes members from local/regional governments, key business and industry partners, and civil society
3. ***Provide training possibilities for staff and reward excellent performance.*** Training possibilities should be offered to enhance the quality of teaching, organisation of internships, research and knowledge exchange, and internationalisation. Training possibilities should also exist for staff members who wish to contribute to the organisational change agenda. Excellent performance should be identified and rewarded.
4. ***Further invest in the establishment of coordination mechanisms for entrepreneurship promotion, and involve students.*** Existing coordination mechanisms for entrepreneurship promotion, such as entrepreneurship centres and technology transfer centres, should be continued and improved in order to reach out all across campus. The aim should be to develop dynamic structures that link the HEI with the entrepreneurship ecosystem and offer easy access to different publics inside and outside the HEI. Students are an important resource for this.
5. ***Incentivise the strategic involvement of key external stakeholders. Providing recognition and rewards for strategic partners is important.*** HEIs may need to adapt or introduce new criteria for awarding external stakeholders for their contributions to the innovative and entrepreneurial HEI agenda.
6. ***Build strategic bonds with alumni.*** A network of alumni can be very useful to understand how to increase the relevance of teaching and research. Alumni are also a key resource to promote organisational change and development. To this end, nascent initiatives across HEIs in the country should be sustained and improved.
7. ***Expand existing good practices in novel pedagogies across the HE system.*** There are several good and promising initiatives all across HEIs in Bulgaria. Information about these should be widely circulated and mainstreaming should be considered.
8. ***Promote entrepreneurship education as cross-section faculty portfolio.*** Entrepreneurship education should be expanded and tailored to all students across all faculties and levels.

9. ***Increase the institutional embedding of knowledge exchange activities.*** Clear and vocal leadership, guidance and support mechanisms are needed to promote knowledge exchange as an integral "part of their job".
10. ***Make internships an entitlement for students and provide support.*** Internships should be an entitlement for all students. Internships need to be supported by HEIs in terms of information prior to the internship, guidance and support during, and reflection after the internship.

International learning models

Inspiration for the development of innovative and entrepreneurial HEIs in terms of leadership, organisational capacity, teaching and learning, start-up support, knowledge exchange, and internationalisation can be drawn from practices that work well in other regions and countries.

Several initiatives are outlined in the report include, including:

EXIST is a support programme of the German Federal Ministry of Economics and Energy which aims at (i) fostering the entrepreneurial environment at universities and research organisations and (ii) at increasing the number of technology and knowledge based business start-ups. EXIST is co-financed by the European Social Fund. Most relevant for the Bulgarian context is the EXIST project line Culture of Entrepreneurship. It is an effective approach to stimulate organisational change, and to promote the innovative and entrepreneurial HEI, because of the involvement of all HEIs into a competition and coordination process. EXIST organises regular thematic workshops and conferences, hosted by different HEIs. The institutional commitment of HEI leaders is a core pre-requisite for the absorption of public funding. A brief description follows below.

The "**Knowledge antennas**" built by the Rovira i Virgili University in Catalonia (Spain) have been key facilitators of the emergence of a viable interface between the university and the local economy stakeholders. It is a relevant example for the Bulgarian context because of the successful introduction of global links for local businesses through the university's research and teaching networks and the effects this had on the organisation of third mission activities at the university. A brief description follows below.

The **Council for Entrepreneurship** at the Universidade Nova de Lisboa is an example of how to ensure shared knowledge and outreach to all faculties, and how having a local celebrity as Chair of the Council for Entrepreneurship can attract key strategic partners.

The **Strascheg Center for Entrepreneurship** at the Munich University of Applied Sciences is another example of an all-campus approach to co-ordinate the innovative and entrepreneurial HEI agenda. What can be learned from this approach is that strong support of the leadership is crucial to gain institution-wide outreach. It remains important however, to reach out to students. Professors are important conduits for this and their commitment needs to be incentivised and rewarded.

Chalmers School of Entrepreneurship was founded in 1997 at Chalmers, one of the oldest and largest institutes of technology in Sweden. Students are the forefront of the commercialisation process because of their 'different' approach to recognising the commercial and societal value of research results. This is a relevant learning point for HEIs in Bulgaria.

The **Rovira i Virgili University** started in 1992 as a "university under construction" with young ambitious staff willing to fight for career success. To incentivise and reward excellence in teaching, research and knowledge exchange activities, the rector established the Research and Academic Staff

Commitment Agreement, which facilitated the identification of training needs and the design of tailored training programmes.

The **Technical University of Valencia (UPV)** is known for its considerable level of interaction with the regional economy. It has a clear institutional structure to support different types and stages of partnerships combined with a set of incentives to academics.

The **Innovative Academic Entrepreneurship Education Network in Poland (SEPIA)** started in 2006. This network has helped to share information about entrepreneurship education activities across HEIs in Poland. A similar approach could also help to widely circulate information on the various promising initiatives that already exist in Bulgaria.

ROXI, the Rostock Start-up-Initiative at the University of Rostock in Germany is based on the constructivist learning paradigm. The emphasis is on soft skills development. The concept of entrepreneurship promoted at ROXI includes business entrepreneurship, social entrepreneurship, cultural entrepreneurship, eco-entrepreneurship, international entrepreneurship and intrapreneurship. Participants are selected and pay fees. Consultancy and post start-up support are offered.

"Learning to Think Like an Entrepreneur" is a two-day experiential learning process at EMLYON Business School. Initially offered only to MBA students, it is now offered to all students. Participants develop, in teams of up to five people, a method to assess business plans for start-ups from the investor's perspective. The key success factors – invite the entrepreneur who wrote the business plan, and take enough time to brief coaches about their role – are key learning points for those leading entrepreneurship education activities at Bulgarian HEIs.

The **Gründerwerkstatt** – entrepreneur workshop at the Beuth Hochschule für Technik in Berlin is an example of an effective co-working and incubation for young entrepreneurs from all over the world who are willing to move temporarily to Berlin. A brief description follows below.

The spirit and motto of the **University of Bergamo** is "learn along the way, less lectures, more experiences and opportunities for young people". Internships are mandatory for all study programmes and students co-design their own "internship projects" with the academic and the company tutors. The "internship project" is a key enabler for learning. Students have a greater say and responsibility in designing a process which is meaningful for their studies and professional development. This is a key learning point for Bulgarian HEIs, as well as the fact that the current success of the internship programme has emerged over time as the result of an active leadership, and in-depth research of potential areas of collaboration where often alumni are offered the "deep look" into the needs and ambitions of future partners. A brief description follows below.

Finally, the **Polytechnic University of Valencia** is an example of a common institutional framework to promote mobility of staff and students through the creation of functional units to provide information, assistance and mechanisms that promote the sharing of international contacts across the HEI.

Full description of selected learning models

EXIST – Promoting entrepreneurship in science and higher education

Approach

EXIST is a support programme of the German Federal Ministry of Economics and Energy which aims at (i) fostering the entrepreneurial environment at universities and research organisations, and (ii) at increasing the number of technology and knowledge based business start-ups. EXIST is co-financed by the European Social Fund.

EXIST started in the late 1990s with a selection of HEIs in Germany. It initially provided funding for research projects that carried spin-off potentials and students and graduates who wanted to start their own business with a technology-based idea. In 2005 EXIST opened up to all German universities and universities of applied sciences. The project management of EXIST is carried out by Projektträger Juelich (PtJ) at the Research Centre Jülich GmbH. All the "work on the ground", such as informing students, supporting applications, training and the provision of physical infrastructure and access to laboratories is provided by the HEIs.

Today, EXIST has three distinct project lines:

- Culture of Entrepreneurship (*Gründungskultur*)
- Business Start-Up Grant (*Gründerstipendium*)
- EXIST Transfer of Research (*Forschungstransfer*)

Culture of Entrepreneurship

The EXIST programme "Culture of Entrepreneurship" supports projects at universities to build up an infrastructure for providing skills and support for technology and knowledge-based innovative ventures. In support of these activities, universities receive an allowance from the German Federal Ministry of Economics and Energy over a three-year period. In the period 1998 to 2012, the government supported a total of 72 projects for a total amount of approximately EUR 104 million. This included co-financing of entrepreneurship centres, regional outreach initiatives, such as HEI-business interface structures, curriculum development to anchor entrepreneurship education in technical and science subjects, and coaching and mentoring initiatives for new entrepreneurs (students, graduates and alumni).

In 2010 a new phase started: the entrepreneurial HEI competition.³In April 2010, 83 HEIs submitted project proposals and 24 received a short-term funding to prepare a full proposal for a funding period of three years. In July 2011, ten HEIs were selected by a jury of national and international entrepreneurship experts. The three winners – the Technical University of Berlin, the Carl-von-Ossietzky-Universität Oldenburg and the Munich University of Applied Sciences – received the label "EXIST- Gründerhochschule" (entrepreneurial university). A second round of the competition was completed in 2013.

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³ The OECD LEED Programme participated in the development of the selection criteria and was part of the jury.

EXIST Business Start-Up Grant

EXIST Business Start-Up Grant supports the preparation of innovative business start-up projects at universities and research institutions.

The grant aims to help scientists, university graduates and students developing their business ideas into business plans and to advance their ideas for products and services. To cover their living expenses, the entrepreneurs receive a grant between EUR 800 to 2,500 per month, depending on their degree, for a maximum period of 12 months. In addition, they receive materials and equipment (worth EUR 10,000 for solo start-ups and EUR 17,000 for team start-ups, funding for coaching EUR 5,000 and, if applicable, a child benefit of EUR 100 per month. The university or non-university research institution offers infrastructure during the pre-start-up phase and provides technical and start-up related assistance.

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EXIST Transfer of Research

EXIST Transfer of Research promotes technology-based business start-up projects in the pre-start-up and the start-up stage. EXIST Transfer of Research” complements the broadly targeted EXIST Business Start-Up Grants with an excellence-oriented measure for high-tech start-ups.

The purpose of the first funding phase is to support research teams at universities or research institutes so as to enable them to provide proof for the technological feasibility of their product idea and to prepare the business start-up. The funding includes staff expenses for up to three staff members and EUR 60,000 for materials and equipment. After one year, funding is available for another person with managerial skills to become a member of the start-up team later. The maximum funding period is 18 months in the pre-start-up phase.

During the second funding phase, the newly founded technology oriented companies can be supported with up to EUR 150,000 to continue the product design, for instance up to the prototype realisation and to solicit external funding for their company.

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What can be learned from EXIST?

Most relevant for the Bulgarian context is the EXIST project line Culture of Entrepreneurship. It is a very effective approach to stimulate organisational change and to promote the innovative and entrepreneurial HEI, because of the:

- Involvement of all HEIs into a competition and coordination process – EXIST organises twice per year thematic workshops and conferences, hosted by different HEIs
- Creation of a network of "doers" and researchers – various conferences are organised every year and various informal platforms and communities of practices are offspring results
- Institutional commitment in HEIs – which is a core prerequisite to be successful in the competition, and the mid-term evaluation

Knowledge Antennas, Spain

The approach

The Rovira i Virgili University (URV) is a comprehensive, research-intensive and globally linked university, contributing to innovation and sustainable growth in Catalonia's core industries - chemical, energy, tourism and agro-food. URV was founded in 1992 as a public university for southern Catalonia, a region with 800,000 inhabitants, with the aim to unite existing higher education faculties and schools in the Tarragona area under a joint institutional umbrella. Today, URV has 13,500 students across six campuses, and around 2,000 graduates per year from 52 study programmes (2013). Annually, URV spends around 27% of its overall budget of EUR 105 million (2013), on research and development and innovation (RDI) activities. Two-third of this RDI budget comes from Spanish and Catalan competitive funding programmes.

URV is deeply embedded into the regional economy, and is considered a driving force for sustainable regional, social and community development. There is wide and active local interest in establishing close links with URV. The establishment of "knowledge antennas" (KA) in 2007 has been a strategic response to this, building on the prior establishment of five campuses spread throughout southern Catalonia. In response to the requests of the other municipalities in the region, URV started the Extended Campus initiative with a network of 13 KAs (2013).

The KAs have been established in partnership with municipalities and other local stakeholders. These partners offer buildings to host teaching, research and third mission activities. Each KA has a coordinator, appointed jointly by the local host and the URV, whose task is to guide the participatory design process of the annual programmes, in liaison with the URV's vice-rector for external relations, and to oversee their implementation. Several exchange meetings are organised per year to bring together the 13 KAs. The activities of the KAs are tailored to local contexts. The programmes offered can be very diverse in terms of their format and thematic focus.

All KA have become platforms of dialogue and exchange for academia, businesses, industry representatives and civil society. They serve as regular meeting points for members of the university community, students, alumni, researchers, teaching and staff. Two key areas of KAs activities are (i) Accelerating capabilities in businesses: Through deeper conversations with industry and business representatives, URV is increasing the alignment of their higher education courses, training and further education programs with current regional and future skills needs; (ii) Promoting local-global connections: URV has been successful in attracting international students and researchers to southern Catalonia. By making its international links available to regional businesses and community stakeholders, URV enhances the region's role in creating a leading knowledge and innovation ecosystem.

What can HEIs in Bulgaria learn from this example?

The knowledge antennas have been key facilitators of the emergence of a viable interface between URV and the local communities, especially given the socio-economic differences in the region and the variety of actors and interests. It is a relevant example for the Bulgarian context because of the:

- Effectiveness in building closer links with industry and businesses through skills development efforts (further education and training) and knowledge exchange (research, conferences)

- Introduction of global links for local businesses through the sharing and co-creation of international contacts via URVs research and teaching networks
- Encouraging of third mission activities amongst the URV community.

Gründerwerkstatt – the entrepreneur workshop at the Beuth University of Applied Sciences in Berlin

The approach

The Gründerwerkstatt, entrepreneur workshop, started as a project in 2004 at the Beuth Hochschule für Technik in Berlin. The aim was to offer a co-working and incubation space for Beuth students and alumni as well as for young entrepreneurs from all over the world who are willing to move temporarily to Berlin.

The first round of tenants in 2005 included 10 Teams from all Beuth and other HEIs in Berlin and Germany. Currently the sixth batch of tenants is located in the Gründerwerkstatt <http://www.beuth-hochschule.de/gruenderwerkstatt/>, with 23 teams. During the past nine years more than 100 teams and ideas were supported by the Gründerwerkstatt, many of which are still successfully in the market. 30 teams have won national and international competitions. One full-time project leader, and student support staff are managing the Gründerwerkstatt.

New tenants are selected through a 2-stage process on the basis of a business plan proposal submitted by teams or individuals. Soft skills, such as entrepreneurial drive and creativity, are key selection criteria. Successful candidates are offered a place in the Gründerwerkstatt for a maximum duration of 18 months and a living allowance of up to EUR 4,000 (per team). Free access to all laboratories is offered in addition to a working place in an open office space. Mentoring and coaching are offered through the Coach-Programme of the Investitionsbank Berlin and Beuth.

A key success factor has been the interdisciplinarity of the Gründerwerkstatt with team members being engineers, natural scientists, lawyers, economists, historians, artists, designers, architects, etc. The co-working space approach has helped many teams to address difficulties in how teams work together. Working in a team needs to be learned, especially as there are frequent stress situations. Contacts to "older" teams can help.

The Berlin Senate for the Economy, Technology and Research is co-financing Beuth for the Gründerwerkstatt. The Senate is utilising European Social Fund resources for this. The Business Angels Club Berlin, the business associations of Berlin and Brandenburg, and other HEIs in Berlin are key partners.

What can HEIs in Bulgaria learn from this example?

- Co-working spaces can be an effective approach to build links with the local entrepreneurship ecosystem
- Interdisciplinarity is a key success factor
- Peer learning can be very effective – see example on overcoming conflicts in teams.

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University of Bergamo (Italy): Internship projects as a key success factor

The approach

The University of Bergamo (UniBg) is a fast growing university with currently about 16,000 students and 300 PhD students. It is located at north-western heart of the Italian economy, in the Lombardy region. The spirit of UniBg is a living laboratory, the mission is to prepare young people for their future life. The teaching philosophy is: "learn along the way, less lectures, more experiences and opportunities for young people."

UniBg is located in close proximity to Milan and the wider Lombardy region which hosts 12 HEIs, most of which are high on international rankings. UniBg is performing very well in this context. The period 2001-2011 saw a 7% increase in the number of students. Currently 331 professors and researchers and 230 administrative staff work at UniBg. The number of international students also increased rapidly as did the number of MA study programmes taught entirely in English, also several PhD programmes are fully taught in English. The number of international faculty members is growing quickly with currently about 60 foreign professors and more than 20 visiting professors/research fellows coming from 15 different countries. UniBg has three campuses - humanities, economics and law, and engineering, which is co-located in parts in the technology and science park "Kilometro Rosso", www.kilometrorosso.com.

UniBg has a dynamic leadership and strongly invests in its human resources. The average age of professors in engineering is in the mid-40s, which is about 15 years lower than the overall average of the academe in Italy.

UniBg's strategy has a five key points:

1. Teaching quality: started with the Teaching Quality Programme, allocating more resources to the best courses
2. Strengthening job orientation and placements
3. Network University
4. University and Territory: territorial presence & sharing strategic perspectives
5. International opening: each of our graduates should be provided with more experiences, at least one abroad

Internships are core to UniBg's teaching and learning philosophy. Internships are mandatory in the student programme. The internship process is centralised and web-based ("before" and "during"). All actors are well informed about their duties and roles, which have been jointly defined.

UniBg is fully committed to a continuous dialogue with labour market, including companies and organisation, in order to:

- Promote high quality internships
- Design specific personal projects for each candidate
- Matching companies needs with each student skills and abilities in a win-win framework

A central part of the internship process is the "internship project" (see below). A formal agreement between UniBg and the company is signed. Companies are aware of their role in the

teaching experience (and of the benefit they can get from it). Companies also propose internship projects or react to proposals they receive from the internship office. The internship office started small with a few members of staff and has now 10 staff members, who are taking care of internships and placements. Internships are, in general, not remunerated.

The "internship project" is owned by the student and is the result of a close collaboration with the academic and company tutors. It is based on a well-defined job reference role, with clearly detailed job and tasks and learning objectives. The supervision process is clearly planned and agreed by all partners in terms of milestones, periodic meetings, reports, etc. Internships last between 2-12 months. Interns prepare detailed timesheets and a final report, which are approved by the tutors. The assessment is done through anonymous questionnaires completed by the student and the company tutor.

The "internship personal project" is a key enabler for learning as students have a greater say and responsibility in designing a process which is meaningful for their studies and professional development. Also for the companies the "internship project" increases the relevance of internships to business development. Often these projects touch key areas in research, organisational development, internationalisation, etc.

Recently, driven by the labour market requirements for graduates of legal studies, so-called excellence internships were introduced in the law faculty. These internships last 12 months, as interns need more preparation to be meaningfully included in daily tasks.

Several multinational corporations are located in the Bergamo area, such as Brembo, Gewiss, Italcementi, SIAD and Tenaris. The area has one of the highest business start-up and growth rates in Italy, and most operate in the export oriented medium-high technology manufacturing sector. The current success of internships has emerged over time as the result of an active leadership, and in-depth research of potential areas of collaboration ("looking deep" into company needs and aims, often with the help of alumni).

UniBg currently has:

- 1,340 active framework agreements with companies and institutions
- ~ 1,500 internships per year (steadily increasing)
- ~ 250 active academic tutors
- ~ 100 international internships per year (non doctoral)
- 15 excellence internships in 2013
- ~ 350 non-curricular internships per year (these are research-based, i.e., interns are part of research projects)
- Results of the companies assessment (91% highly satisfied)

What can HEIs in Bulgaria learn from this example?

Importance of the "internship project" as key enabler for learning. It gives students a greater say and responsibility in designing the process and makes the internship meaningful for their studies and professional development.

The "internship project" and the co-tutoring increase the relevance of internships for business development. Often these projects touch key areas in research, organisational development, internationalisation, etc.

The current success of internships has emerged over time as the result of an active leadership, an in-depth research of potential areas of collaboration ("looking deep" into company needs and aims, often with the help of alumni).

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