

# **EDU LAB**

**New Danubian Governance in Labour  
market Relevance of Higher Education**

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**Foreword by  
Corina Crețu,  
European  
Commissioner  
for Regional  
Policy**

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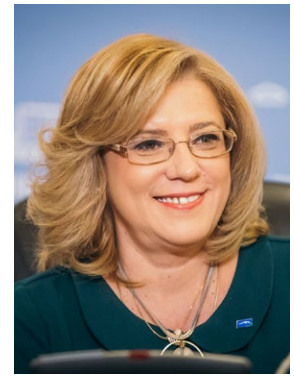
## Dear Readers,

The 'EDU-LAB New Danubian Governance in Labour market Relevance of Higher Education' project is one of the best examples illustrating how EU Cohesion Policy concretely benefits society and citizens through European Territorial Cooperation (Interreg).

Co-funded by the European Regional Development Fund, with more than 1.6 million euros, and by the Instrument for Pre-Accession Assistance, with almost 500.000 euros in the framework of the Interreg Transnational Programme Danube, this project is about finding solutions to one of the biggest challenges of today: brain drain and the mismatch between educational training and labour market opportunities for young people.

By bringing together 27 partners from more than 10 countries, with experts from sectors such as education, business and decision makers, this project is helping young people living in the Danube region improve their professional chances. The ultimate goal is to develop a new governance model to create a binding commitment by the "Danubian Charter for young talents".

As EU Commissioner for Regional Policy, I am very proud to see that this project is bringing tangible results, improving the life of people—especially youth—in the Danube region. For instance, in 2018, the first professionally-oriented bachelor's programme, developed in close cooperation with a university,



representatives of industry and commerce and state administration in Slovakia, was created. On top of this very practical achievement, this project is also contributing to shape education and labour market policy-making by designing the New Danubian Governance Model, in order to develop a practice-oriented higher education model that aligns education and training with the demands of the job market.

I am confident that the 'EDU-LAB New Danubian Governance in Labour market Relevance of Higher Education' project can become a great case study applicable also in other areas of Europe, as brain drain is a challenge that many other European countries are facing.

Congratulations to all the project partners!

A handwritten signature in blue ink, reading 'Crețu'. The signature is written in a cursive style and is positioned above a horizontal line.

Corina Crețu  
European Commissioner  
for Regional Policy

# Introduction

The story of the project “*EDU-LAB: New Danubian Governance in Labour market Relevance of Higher Education*” began in 2014. For almost all countries of the Danube Region, the European Commission recommended improving the quality of education and training systems to ensure a better match with labour market demands. Brain drain due to higher academic and economic attractiveness in Western Europe calls for joint action: Bringing together people from education, business, politics/administration and civil society at the same table to develop approaches and find solutions for linking education to employment in a systematic way.

Within the Danube Transnational Programme (DTP), EDU-LAB is, since

2016, the only project aiming at improving institutional capacities to increase the labour market relevance of higher education with a view to retain more young people studying and working in the region. There is a clear need for closing cooperation gaps and capacity development in the whole region. With EDU-LAB, we focus on improving institutional capacities to enhance professional chances of young people, strengthen competitiveness of companies and regional development.

We highly appreciate the support of many partners and stakeholders throughout Europe, among others, from the EU Strategy for the Danube Region (EUSDR) where EDU-LAB, already in 2016, was selected as a

strategic project in the Priority Area 9 “People & Skills” and linked to the Priority Areas 8 “Competitiveness of Enterprises” and 10 “Institutional Capacity & Cooperation”. The support of Kolping-Bildungswerk Württemberg, Robert Bosch Stiftung, DTP Joint Secretariat as well as the Ministry of Finance and Economics Baden-Württemberg has been highly valuable.

Bridging cooperation gaps and bringing people together: With more than 20 financing project partners and seven Associated Strategic Partners from 10 countries, EDU-LAB is the project with the highest number of partners within DTP. More than 100 key stakeholders, decision-makers and representatives of the EUSDR attended the official Kick-off Conference hosted by the Ministry of Justice and European Affairs in Baden-Württemberg at the Neues Schloss in Stuttgart on March 14<sup>th</sup> 2017. Together with all partners, we signed a symbolic declaration to fulfil a common mission:

- open up better professional chances for young people
- implement practice-oriented study programmes
- improve the competitiveness of companies
- strengthen the regional economic development.

This book presents the actions that were taken and the most important results:

- Four e-learning courses were designed to create a greater awareness of the possible benefits of linking education to employment in the Danube Region and offer an overview of the possible steps that could be taken to achieve this.
- Involving more than 150 stakeholders, we jointly developed the “New Danubian Governance Model” to address specifically the regional problem of skilled-workforce emigration. Only through the transnational and intersectoral cooperation, it was possible to develop the New Danubian Governance Model which offers a road map of implementation for every key actor/stakeholder on the levels of politics, policies and projects in the Danubian Macroregion.
- The developed guidelines were converted into action plans for implementing pilot activities in three countries: Slovakia, Serbia and Bulgaria. The most significant result achieved is the accreditation and launching of the 1st Slovakian Professional Bachelor Study Programme in September 2018 at the Technical University of Bratislava.
- Finally, a synthesis of all results will be shared in the form of the Danubian Charter for Young Talents, signed at the final event of EDU-LAB in Zagreb on May 16<sup>th</sup> 2019. It is accessible and

available for any countries facing similar challenges like those of the Danube region. It is to inspire the transnational triple helix cooperation of education, business and politics/administration as spelled out in the New Danubian Governance Model.

2.5 years of EDU-LAB show that transnational and transsectoral cooperation can be challenging at times, but once we are sitting in the same room there is a lot that we can learn from each other and we can achieve results together that are exceeding expectations. Leading the Thematic Pole 9 “Educational Governance” within DTP, we carried out various capitalization activities cooperating with external projects, initiatives and institutions with a view to create a shift towards more demand-driven and labour relevant education schemes and develop blended learning tools for designing and implementing new educational

governance models for institutional learning. All involved partners underline the necessity to continue working on linking education to employment in a systematic way in order to achieve a long-term impact.

We express our sincere thanks to all EDU-LAB partners, Interreg Volunteers and supporting stakeholders on our joint way to open up better chances for young people.

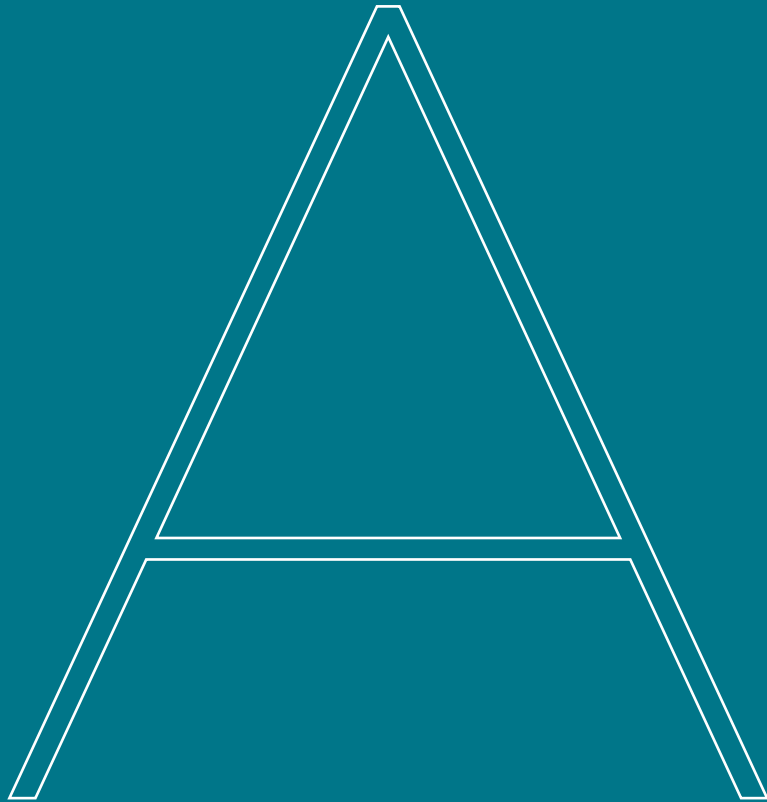
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European Foundation  
for Education e. V.

Prof. Dr. Wolfgang Schuster,  
President

Monika Burkard,  
Secretary General

Dr. des. Ágnes Sebestyén,  
Project Director



# Danubian Charter for Young Talents

# DANUBIAN CHARTER

# FOR

# YOUNG TALENTS

EDU-LAB: Project co-funded by  
European Union funds (ERDF, IPA)

## 1. Our Common Mission

High youth unemployment and the brain drain are prime development challenges to be tackled by the countries of the Danube region. Adjusting the educational systems to the major societal needs and economic transformations of the 21st century, and matching education with the requirements of the regional labour market, are key governance tasks. Since companies in most sectors are faced with serious high-skilled labour shortage – not only temporarily but long term – the question of how to enhance employability is on top of the agenda. In order to link education with employment in a systematic way, the labour market relevance of higher education needs to be raised significantly. Therefore, our aim is to

- create an enabling environment to better professional chances for young people;
- implement practice-oriented study programmes, and to enhance entrepreneurship competencies of professors and students;
- improve the competitiveness of companies and build up their innovative capacities;
- strengthen the regional economic development.

We are following the European Commission's recommendations for improving the quality of education and training systems and to match them with labour market demands in the Danube region. The Western Balkans Platform on Education and Training considers aligning higher education with labour market needs of vital importance to education systems. ESF requires ensuring "young people get the skills that make them more competitive on the job market". According to the EU Strategy for the Danube Region (EUSDR) "by 2020, all citizens of the Region should enjoy better prospects of higher education, employment and prosperity in their own home area", therefore "education and training

must be relevant to labour market needs.“ We assure the long-term commitment to reach these goals defined by the EC and the EUSDR (targets PA7, 8, 9 and 10). The project EDU-LAB has been selected as a strategic project within the Priority Area 9 “Investing in People and Skills” of EUSDR.

## 2. Our Common Vision

The educational systems of the 21st century have to respond to global megatrends which shape our current and future economies: globalization (1), digitalization (2), social and cultural heterogeneity (3), environmental change (4) and demographic transition (5). To get along with continuous change and growing complexity both in professional and social environments new competences, abilities and skills are required, such as

- specific professional expertise as basic and orientative knowledge combined with understanding of the complexity and interdependences of our economic system;
- cognitive abilities, especially analytic and problem-solving skills, combined with the ability to familiarize oneself with new and innovative fields of professional activities;
- social, organizational and personal competencies, above all communication skills, the ability to work individually and in a team and under pressure with flexibility and resilience, ability to create and effectively use professional and social networks;
- intercultural competencies, above all openness for other cultures, knowledge of foreign languages, competences related to foreign countries and familiarity with their everyday culture.

Employment prospects for young people must be heavily improved and at the same time the high-skilled labour

shortage of companies tackled through practice-oriented study programs. Such programs, combined with applied and innovations oriented research, can contribute significantly to improving the competitiveness of companies and to strengthening the economic development in the Danube region, thus creating a win-win situation for all.

## 3. Our Common Implementation Strategies

A triple-helix cooperation by stakeholders in higher education/applied research institutions, policy makers/public administration, business associations/companies (and civil society in general which is faced with profound developmental challenges such as an aging population, digitalization, and other) is needed to further practice-based learning. With a New Danubian Governance Model we seek to systematically and long term establish this cooperation in order to develop sustainable structures for the implementation of practice-based study programs, and thus to improve professional chances for the young generation. The model reflects the outcome of a joint transnational learning process about how to improve institutional capacities which will bring added value for all stakeholder groups in the Danube region. We see the need for a new mindset on which the New Danubian Governance Model is based to combine knowledge and competencies, education and learning processes in a dual way through systematically linking:

- basic knowledge with problem-solving skills;
- expertise with understanding of interdependence and complexity;
- theoretical learning with practical doing;
- analogue with digital forms of learning (blended learning);



- individual with cooperative study processes;
- independent with team-based work;
- hierarchical with individual decision making and responsibility-taking competencies;
- personal cultural identity with intercultural understanding;
- self-reflection with social interaction.

The model entails the active triple-helix cooperation between the three stakeholder groups – higher education/applied research institutions, policy makers/public administration, business associations/companies – and it reaches out to actors in civil society (represented by citizens associations, NGOs, interest/stakeholder groups) as well as necessary driving force. Long term commitment of all is necessary in order to form new or expand existing learning partnerships between higher education institutions and companies. Such partnerships are basic for study programs which follow a dual approach.

#### **4. Our Common Culture of Cooperation and Participation**

The signing parties push forward for cultural transformation by building a common culture of

- cooperation between the three stakeholder groups by long lasting binding partnerships;
- social responsibility for young people by all stakeholder groups;
- participation in the development of educational formation by universities and companies, in response to societal needs;

- study programs combining theoretical knowledge and practical skills for professors, trainers and students;
- participation of students in interactive e-learning and working processes in companies;
- innovation in universities adapting and regularly updating the study curricula towards the needs of society and economy;
- applied, socially and environmentally responsible science and research in universities and companies;
- sharing experiences and transparency between the three stakeholder groups;
- governance based on mutual understanding and trust for sustainable cooperation in the fields of education, science and research.

We want to build new hope and motivation for young people: to develop their talents and competencies and to use their skills for developing a career in their home region and thus contributing to the competitiveness of local companies – a win-win-situation for all.

#### **5. Our Common Commitment**

As representatives of the three stakeholder groups we are willing to commit to further practice-based learning and to implement a dual model in higher education in the Danube region, by

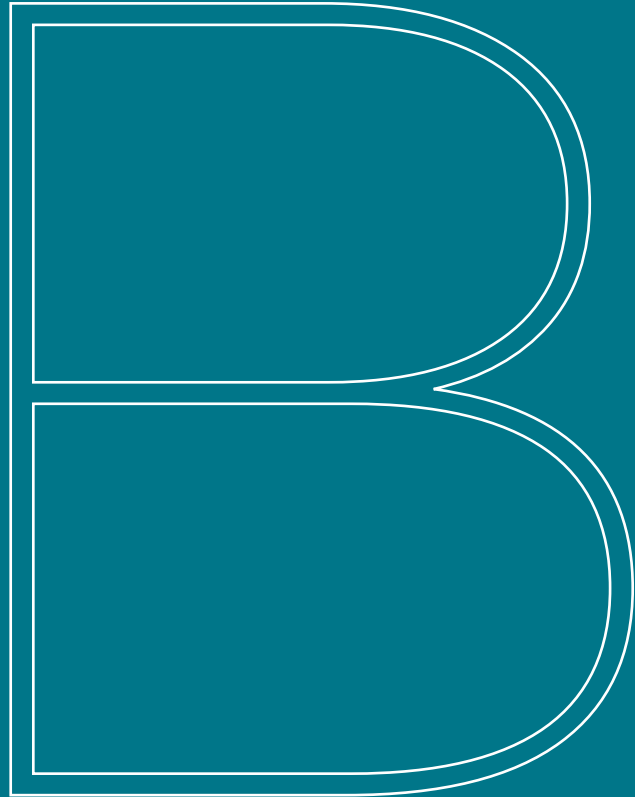
- incorporating a combination of theory and practice in tertiary education;
- developing a life-long regularly updated learning system in a systematic and sustainable way;

- establishing cooperation between universities and companies in teaching and in applied research enabled by law and stimulated by financial incentives;
- engaging companies to take over a binding responsibility for students and commitment in learning partnerships with universities;
- keeping the educational system flexible to follow the actual economic and social challenges through continuous technical and social development;
- strengthening and broadening the stakeholder dialogue by contributing to higher synergies of education systems and labour market demands on all levels;
- encouraging and lobbying for Higher Education Law amendments for establishing practice-oriented study programmes;
- cooperating within a Danubian network for professional education, for example in a Danubian Council for Professional Education.

The Danubian Charter as final document is the outcome of a transnational and participatory learning process by 10 countries (Germany, Bulgaria, Croatia, Hungary, Romania, Slovakia, Slovenia, Bosnia and Herzegovina, Serbia, and Belgium) involved in the EDU-LAB project. It is accessible and available for any countries facing similar challenges like those of the Danube region; it is to inspire the triple helix cooperation as spelled out in the New Danubian Governance Model. The Danubian Charter can be signed by any organisation or initiative committed to its principles and recommendations.







# Partnership Consortium

Belgium  
 — DRC p. 79  
**Danube Rectors' Conference,**  
 Brussels

DRC

EFE

Germany  
 — EFE p. 26  
**European Foundation for Education,**  
 Stuttgart

Slovenia  
 — UM p. 57  
**University of Maribor,**  
 Maribor

— RDANP p. 60  
**Regional Development Agency of Northern Primorska Ltd. Nova Gorica,**  
 Nova Gorica

— MESS p. 81  
**Ministry of Education, Science and Sport,**  
 Ljubljana

UM RDANP MESS

Slovakia  
 — DSIHK p. 52  
**German-Slovak Chamber of Industry and Commerce,**  
 Bratislava

— TUKE p. 49  
**Technical University of Košice,**  
 Košice

— ZAP SR p. 55  
**Automotive Industry Association of the Slovak Republic,**  
 Bratislava

DSIHK TUKE ZAP SR

Hungary  
 — JNU p. 45  
**John von Neumann University,**  
 Kecskemét

— EMMI  
**Ministry of Human Capacities,**  
 Budapest

— MOK  
**Municipality of Kecskemét,**  
 Kecskemét

KaW Found VERN MZOS

DDIP MEF LiNK Mostar RA USK

Croatia  
 — KaWFound p. 40  
**Knowledge at Work Foundation,**  
 Zagreb

— VERN' p. 43  
**VERN' University of Applied Sciences,**  
 Zagreb

— MZOS  
**Ministry of Science, Education and Sports,**  
 Zagreb

Bosnia and Herzegovina

— DDIP p. 70  
**Department for Development and International Projects of Zenica-Doboj,**  
 Zenica

— LiNK Mostar p. 65  
**LiNK Mostar, Association for Entrepreneurship and Business,**  
 Mostar

— MEF p. 63  
**Mechanical Engineering Faculty (University of Sarajevo),**  
 Sarajevo

— RA USK p. 68  
**Development Agency of the Una-Sana Canton,**  
 Bihac

JNU EMMI MOK

LBUS

IMP

CCIS MoESTD

Serbia  
 — IMP p. 73  
**Institute Mihajlo Pupin, University of Belgrade,**  
 Belgrade

— CCIS p. 76  
**Chamber of Commerce and Industry of Serbia,**  
 Belgrade

— MoESTD  
**Ministry of Education, Science and Technological Development of Serbia,**  
 Belgrade

Bulgaria

— ISSK-BAS p. 37  
**Institute for the Study of Societies and Knowledge, Bulgarian Academy of Sciences,**  
 Sofia

— TU Sofia p. 29  
**Technical University of Sofia,**  
 Sofia

— Vratsa p. 34  
**Municipality of Vratsa,**  
 Vratsa

— BIA p. 31  
**Bulgarian Industrial Association,**  
 Sofia

— MOES p. 80  
**Ministry of Education and Science,**  
 Sofia

Romania

— LBUS p. 47  
**Lucian Blaga University of Sibiu,**  
 Sibiu

Bucharest

ISSK-BAS TU Sofia Vratsa BIA MOES



# European Foundation for Education

Answers by Prof. Dr. Wolfgang Schuster, Dr. des. Ágnes Sebestyén, Monika Burkard and Krisztina Tóth



## — Please introduce your organisation and tell us about your motivation to take part in the project.

The European Foundation for Education (EFE) is a non-profit educational organization operating on a European level. EFE, as Lead Partner, initiated the project EDU-LAB as an instrument to pursue its mission: creating better professional chances for young people through creating a systematic connection of educational offers with labour market needs.

Speaking about his personal motivation, Prof. Dr. Wolfgang Schuster, founder and chair of EFE, former Mayor of the City of Stuttgart underlines that he wishes that young people living in the Danube Region would get fair chances to pursue

their personal and professional goals in their home region as he did when he was young.

Being born in Romania, having studied in Hungary and conducting her doctoral research on Bosnia and Herzegovina, project director Dr. des. Ágnes Sebestyén has strong professional and personal ties to the Danube Region and was very motivated to steer such a project that is demand driven and has real impact as EDU-LAB.

For Monika Burkard, Secretary General of EFE and head of the two-year application process, the proposal as well as the project itself provided highly valuable experience and deep insights in transnational cooperation at a European level. Krisztina Tóth joined the project as a volunteer in the framework of the Interreg Volunteer Youth Programme, motivated by her interest in education and EU regional policy. Further volunteers supported the EDU-LAB team: Theodoros Plessas, Alina Felder and Mia Matkovic.

## — What is your most memorable EDU-LAB moment?

Working with 27 partners from 10 countries and different sectors can be challenging at times, but there were several face-to-face meetings that brought the partners closer



together. Especially the two-stakeholder meetings in Maribor (September 2017 and January 2018) had many enlightening moments where the involved partners realised how much they can learn from each other and that their expertise is complementary in many ways. In terms of team building, the most memorable moment was probably the Steering Committee Meeting and Partner Meeting in Vratsa (Bulgaria) that took place at a beautiful natural setting, including even a trip to a cave and celebration with live music. Thanks to these meetings, the cooperation through virtual channels that followed had a very strong foundation based on personal contacts.

## — What is the added value of transnational cooperation?

Transnational cooperation is the best way to avoid reinventing the wheel and to make the bigger European picture more visible. The participating partners have been facing very similar challenges such as brain drain or lack of institutional capacities to create sustainable responses. Through transnational cooperation we could learn from each other: we shared tried and tested tools and policies and we could avoid committing the same mistakes. Most importantly, creating results through transnational cooperation makes it sure that these results can be easily transferred and adapted to different national contexts. It became clear that transnational cooperation

*creates more value than single national approaches.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*Cooperation with stakeholders from different sectors is quite challenging. Representatives of different sectors have different institutional structures, approaches, methods, operate at a different pace and there are huge differences in the time they need to react to societal challenges. One of the main goals of EDU-LAB was to bring stakeholders representing politics, education, business and the civil society together, to make them realise that they are sitting in the same boat and sustainable change can be only achieved when they start cooperating systematically with each other. It is clear that a change of mindset is needed to achieve a long-lasting and effective cooperation between stakeholders from different sectors to make all the efforts sustainable.*

— **How do you see the sustainability of EDU-LAB?**

*We are optimistic regarding the sustainability of the project. Given the high number of partners, the operation of the partnership has*

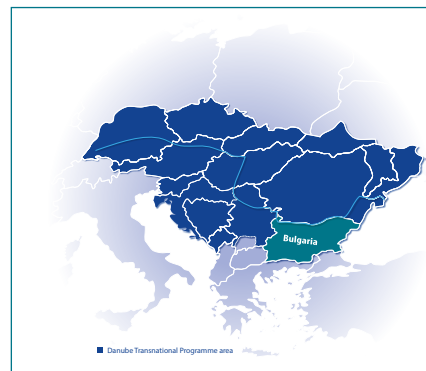
*been extraordinary. Thanks to the project, strong cooperations have been formed on national, cross-border and transnational levels, that will assure the sustainability of results of the projects on different levels. Several ideas have been formed to carry on the joint work, to use the developed tools and implement the policies and broaden the reach of the project results. The signing of the Danubian Charter for Young Talents at the final event is a strong symbol for the long-term commitment of the EDU-LAB partners and further stakeholders from the Danube Region.*

— **Name the most important tangible result that the project has brought for you.**

*The most important tangible result of the project is the launching of the 1st Professional Bachelor Programme in Slovakia in September 2018. Reaching this milestone shows that the recommendations and tools developed by the EDU-LAB partnership are feasible, that our policy recommendations can be translated into actions and that transnational exchange of best practices can speed up a process that would have taken several years otherwise.*

## Technical University of Sofia

Answers by **Dr. Milena Krumova, Dr. Mladen Mladenov and Prof. Dr. Stefan Stefanov**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

*The Technical University of Sofia is the largest educational and scientific complex in Bulgaria in the field of technical and applied science. The university structure includes 14 faculties in Sofia, three departments, a Center of Information Resources, a Library and Information Center, a Center for international meetings, a Center for Continuous Education, a Center for Educational and Innovative Projects, a University Science and Research Complex for innovations and knowledge transfer in the field of micro and Nano-technologies and materials, energy efficiency and virtual engineering. Our motivation to take part*

*in the project is a result of our believing that education needs change towards more practice-oriented study programs and efficient collaboration among all involved parties in this process. We believe the lessons learned from the best practice has to be adapted locally, and the law framework improvement is as necessary as obligatory because of the dynamics of the technology and innovations advancements, that the EDU-LAB project partners accented on.*

— **What is your most memorable EDU-LAB moment?**

*EDU-LAB is memorable for our team with many moments. Perhaps the most challenging one was related to the advancement that the EDU-LAB project brings in the proposed Danubian Charter for Young Talents and the inspirational process of the team work, discussion and ideas of all partners to do the best for the project outcome. The non-formal approach for knowledge sharing among all partners and stakeholders is also an added value. The lessons learned by the best practices and the implementation of the dual system of education are also memorable moments. The collaboration between education and industry presented by the professionals*



from industry and the involvement of the students to express their own point of view on their motivation to enroll in such dual programs, the best practices of Kecskemét, Hungary and Bratislava, Slovakia.

— **What is the added value of transnational cooperation?**

The added value of the transnational cooperation is the network built among the partners and the synergy gained by the knowledge and expertise shared of the partners during the meetings, workshops, and fruitful discussions. The added value is also the many artefacts created, shared and analysed, as well as the enthusiasm for future projects and cooperation.

— **Describe your experience with cooperating with stakeholders from different sectors.**

Based on the project activities (workshops, conferences, etc.) we are pleased to achieve good results regarding the willingness for change not only in the law framework but also in the educational settings – by the Ministry of Education, academia, NGOs and the industrial stakeholders. Even though there are many problems to be solved and barriers to overcome, the awareness for the change is not only visible but some steps have been taken in practice. A collaboration for the Bulgarian Academy for Professional Education was initiated which is a very good sign for opening up better professional chances for young people and implementing practice-

oriented study programmes, which are the two major aim of the Danubian Charter for Young Talents.

— **How do you see the sustainability of EDU-LAB?**

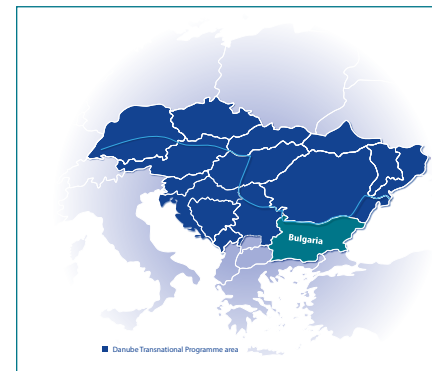
The EDU-LAB project is supposed to evolve, on the one hand the project is valued as a source of knowledge and advanced ideas (as stated in the Danubian Charter for Young Talents) for young people to develop their talents and to use their skills for developing a career in their home region and thus contributing to the competitiveness of local companies – a win-win-situation for all. On the other hand, it is a base for future project activities that can intensify the EDU-LAB outcomes, dissemination and impact.

— **Name the most important tangible result that the project has brought for you.**

- The pieces of training (e-learning courses) designed and developed by the partners.
- Danubian Charter for Young Talents
- Shared best practices of dual by the partners from Kecskemét, Hungary (John von Neumann University) and Bratislava, Slovakia (German-Slovak Chamber of Industry and Commerce; Automotive Industry Association of the Slovak Republic).

## Bulgarian Industrial Association – Union of the Bulgarian Business

Answers by **Kiril Zhelyazkov**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

The Bulgarian Industrial Association – Union of the Bulgarian Business (BIA) represents employers and businesses on a national level. BIA is a member of 18 national advisory councils, the Economic and Social Council of Bulgaria, working groups and committees at ministries and





other institutions and BUSINESS-EUROPE. Through its active participation in the work of BUSINESS-EUROPE, BIA defends the interests of Bulgarian employers at a European level.

The activities of BIA in the field of human resources development, in connection with the needs of the labour market in the last several years, was the basis to continue our efforts concerning higher education. This was backed by more than 10 universities and members of BIA in various sectors of the Bulgarian industry. Their support was important and motivated BIA's participation in EDU-LAB. The project results and a lot of interim information were spread to all the members of BIA who are interested in the relation between industrial develop-

ment and higher education potential to support the competitiveness of the Bulgarian economy.

— **What is your most memorable EDU-LAB moment?**

One of our favorite moments was the signing of the Letter of Intent for the creation of a National Academy for Vocational Education in Bulgaria. The Ceremony of signature was attended by high-level representatives from the Bulgarian Industrial Association, Technical University – Sofia, the German-Bulgarian Chamber of Industry and Commerce, Industrial Cluster Srednogorie and the European Foundation for Education.

Other memorable events were the two working seminars for Bulgarian partners entitled “EDU-LAB: an

engine for changes” held in June 2018 and “Higher Education and Labour market in Bulgaria – problems, possibilities and potential decisions” in March 2019 in Sofia. Participants from businesses, the Bulgarian Academy of Sciences, the National Parliament, the Ministry of Education and Science as well as from universities and vocational schools discussed possibilities to develop professionally oriented study programmes in practice at Bulgarian universities. The joint experts’ groups from industry and universities made suggestions on how to implement professionally oriented study programme keeping in mind the real need of the companies from the sectors of mechatronics and automation, the chemical industry and tourism. A lot of proposals were addressed to the Ministry of Education and Science, the Council of the Rectors and the management of companies with the aim to bring higher education offers closer to the labour market needs.

— **What is the added value of transnational cooperation?**

Seeing new practices being developed about dual studies in higher education, the cooperation established between stakeholders in Slovakia and Hungary and learning about best practices from other countries in the Danube Region were useful. The introduction of necessary steps to be taken in collaboration with companies and universities and their approbation

in Bulgaria was the way to move ahead the policy decisions taken by universities, politicians and industrial companies.

The proposals to create an Association for Vocational Education and an Advisory Council at the Ministry of Education and Science to provide legal advice on implementing the professionally oriented study programmes in Bulgaria follow the practice in Slovakia and Hungary. It can be considered as a real result of the transnational cooperation during the implementation of EDU-LAB.

— **Describe your experience with cooperating with stakeholders from different sectors.**

The project activities started with discussions with a number of sectoral and regional organizations who are members of BIA. During this process, three sectors have shown interest in working on the practical implementation of the New Danubian Governance Model in Bulgaria, namely mechatronics and automation, the chemical industry and tourism. More than 50 companies were involved in discussions and proposals on how to develop new practice-based educational models and implement dual study programmes in relevant Bulgarian universities.

— **How do you see the sustainability of EDU-LAB?**

Through developing sustainable structures, such as an Academy or Association of Vocational Education

and a Council at the Ministry of Education and Science to coordinate proposals for the Higher Education Act amendments in order to support the labour market relevance of higher education in Bulgaria. This is the way to pursue EDU-LAB activities, and in particular through the development of dual study programmes at Bulgarian universities.

— **Name the most important tangible result that the project has brought for you.**

*Being able to discuss potential dual higher education forms together with representatives of businesses, universities and state institutions (such as the Ministry of Education and the Parliament) is a rare and unique moment of the project implementation that we appreciate.*

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## Municipality of Vratsa

Answers by **Petya Velkova, Ralitsa Geshovksa and Vyara Kovacheva**



**Please introduce your organisation and tell us about your motivation to take part in the project.**

*The municipality of Vratsa is situated in the north-western part of Bulgaria, in an area with a growing tendency of depopulation. This was the main reason why we partici-*

*pated in the project: to help the development of the region by attracting young people to return and offering better conditions for businesses and those living there. Due to the proximity of the capital city and the high unemployment rate in Vratsa, the young working age population of the region rarely return to the region after graduation from a higher education institution. The companies face the difficult task of training their unskilled employees and the need for highly educated specialists in the region is becoming more and more obvious. EDU-LAB is one of the first projects which aims to improve institutional capacities to increase the link between the labour market and higher education in order to retain more young people learning and working*

*in the region. More attractive employment opportunities are crucial for encouraging young people to remain in their home region. These opportunities will come from education systems that are better coordinated with the needs of the labour market. A skilled workforce will improve business competitiveness and support local and regional economic development.*

— **What is your most memorable EDU-LAB moment?**

*In the spring of 2018, the municipality of Vratsa had the opportunity to host the third project partner workshop.*

*The way of organization, the variety of halls and food, the rich program of events and the overall attention received have brought the partners closer together and the project consortium became a team and friends. The meeting in Vratsa set a new start and vision of work, contributing to facilitating communication and dialogue between the triple helix. Vratsa proved to be a small town with great potential.*

— **What is the added value of transnational cooperation?**

*The discussions with academics and interested institutions, transparent and frank dialogue with businesses and the public, in our opinion, is the bedrock for making substantial changes leading to the promotion of the prestige and quality of higher education of Bulgaria. The familiarization and use of good practices of the project*

*partners, adapted to the conditions of Bulgaria, are the added value of transnational cooperation. Particularly valuable is the approach to implementing practice in the actual learning process. Each of the sample models uses a different approach and these can be applied in the higher education system in Bulgaria.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*The Municipality of Vratsa succeeded in attracting different stakeholders to the project activities – leading companies in the municipality of Vratsa, mainly in the field of mechatronics and energy efficiency, the Chamber of Commerce and Industry – Vratsa, the Regional Inspectorate of Education, the Technical University of Gabrovo, the Regional Administration of Vratsa and others. Many meetings were held jointly with the Bulgarian partners and representatives of all stakeholder groups in Sofia, Vratsa and Gabrovo. The opinions and recommendations of the selected circle of stakeholders were considered. Through their long-standing experience and professionalism, weaknesses in the education system were exposed. There was a joint effort to find a common solution which satisfies all, by combining the theoretical training with practical activities in specific companies.*

*Through the project, steps have been taken to introduce changes in the legislation, the higher education system and the training programs.*

— **How do you see the sustainability of EDU-LAB?**

*Based on the pilot activities, a report with conclusions, suggestions and recommendations was prepared to achieve a better cooperation between higher education and the labour market.*

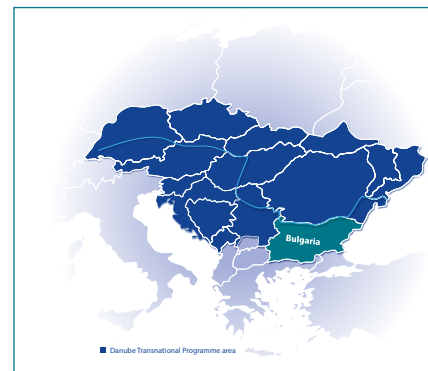
*The proposal is also in line with the priorities of the signed “Memorandum of cooperation in the field of higher education in Bulgaria” between the Council of Rectors and the Bulgarian Industrial Association – Union of the Bulgarian Business in 2018. The proposal aims at the development of the human potential and highly educated graduates in Bulgaria.*

— **Name the most important tangible result that the project has brought for you.**

*The project has enabled the municipal administration to establish close links with local businesses. Raising as much awareness as possible of the needs, problems and difficulties faced by businesses looking for qualified labour was one of the most important tangible results. We can without hesitation say that we have set a very good foundation and created a model of communication between the business sector and education legislative bodies. Following this first step, we hope to launch education programmes that put a strong focus on practice.*

## **Institute for the Study of Societies and Knowledge at the Bulgarian Academy of Sciences**

Answers by **Rumiana Jeleva**



*academic centers in the country and worldwide, to attract young and talented scholars to a scientific career in the field of social sciences, and to disseminate the results of social and philosophical studies to a broader, non-academic audience. By aiming at contributing to the capacity building of higher education institutions and intensifying their dialogue with other stakeholders, such as business organizations, public institutions and NGOs, the EDU-LAB project fit very well within the priorities of ISSK.*

**Please introduce your organisation and tell us about your motivation to take part in the project.**

*The Institute for the Study of Societies and Knowledge (ISSK) is the largest research institution in the field of social sciences in Bulgaria. It is part of the Bulgarian Academy of Sciences (BAS) Sofia which was founded 150 years ago. The ISSK was established in 2010 as the successor of three former prestigious BAS institutes with long scientific traditions: the Institute of Sociology, the Institute for Philosophical Research and the Center for Science Studies. The priorities of ISSK for the period 2010-2021 are to establish the institute as a leading scientific and research center, to develop interdisciplinary cooperation with other*

— **What is your most memorable EDU-LAB moment?**

*The most memorable moment for me was the start of the project – the kick-off meeting held in Stuttgart in 2017. I was thrilled to see that the lead partner, the European Foundation for Education (EFE) had succeeded in organising such a large and excellent consortium. There were so many different partners coming from all possible fields of expertise from the countries of the Danube Region! It was wonderful to see that EFE was able to gather together such a diverse consortium. I can imagine that the preparatory work must have cost the organisa-*



tion great efforts, especially when remembering our own attempt, at the ISSK-BAS, to broaden the Bulgarian participation within the EDU-LAB consortium and to convince some Bulgarian institutions to take part. Fortunately, we in Bulgaria now likewise have a diverse and wide mixture of local stakeholders in the project, who are interested in developing a more effective and adequate relation between higher education and the labour market.

— **What is the added value of transnational cooperation?**

It was greatly useful for our team to learn so much about the practices and experiences of other countries across the Danube Region in the field of dual education, more profes-

sionally oriented study programmes, reforms of the higher education system and so on. This transfer of knowledge and good practices are especially valuable for our country due to the need for a change in the relation between higher education supply and labour market demand. It is important to improve the chances of young people in Bulgaria to find a good job but also to acquire the most needed skills and knowledge. It seems clear to me that there is a distinct skills mismatch in Bulgaria. Moreover, young people here are widely unsatisfied with the education and competences they acquire in universities. The best students are leaving Bulgaria and the domestic labour market and are going abroad – most of them never to return. We

are constantly finding these trends confirmed by our studies. Given this background, it is surprising how little has been done to achieve better labour market relevance of higher education. It is a great advantage that EDU-LAB takes a comparative perspective. Thus, each country and educational system can be seen in relation with the others in the Danube Region. Many conclusions can be made for Bulgaria and for the region as a whole, regarding future development, the chances of the regional economies and the demographic changes.

— **Describe your experience with cooperating with stakeholders from different sectors.**

As the EDU-LAB objective is to bridge the gap between education, business and politics and administration by intensifying dialogue between stakeholders, we were able to participate in an exciting joint intersectoral learning process. We met many representatives of companies, business organisations and public administration. We learned a lot about their demand for qualified people and their efforts to find skilled and reliable personnel. At the same time – especially in the case of Bulgaria – we saw no willingness on the part of businesses to finance more professionally oriented study programmes and curricula in the universities. Changes are happening, but they will take time. Therefore, projects like EDU-LAB are essential for the effort to

develop a new mindset for cooperation in higher education, so that the business sector will assume a more significant and responsible role regarding young people's training and acquirement of new skills and qualifications.

— **How do you see the sustainability of EDU-LAB?**

For sure, a great deal of additional work must be done for the development of a new and more productive mindset towards cooperation with higher education. People do not change their attitudes easily, institutional and regulation systems cannot switch their routines overnight. Unfortunately, the initiatives and activities started by projects like EDU-LAB can subsequently continue mostly on a project basis again. In the case of EDU-LAB, it was essential that the lead partner, EFE, initiated the establishment of a National Academy for Professional Education (NAPE) in Bulgaria.

— **Name the most important tangible result that the project has brought for you.**

In our opinion, the most important tangible result is that we obtained a lot of knowledge about the practices of higher education and its relevance to the labour market demand in all countries covered by EDU-LAB. It was an incredible enrichment for us! In the course of the project, some of the involved countries underwent changes of their laws and institutional regulations regarding the relevance of

higher education to the labour market. This fact shows how productive transnational cooperation, capacity-building dialogue, exchange of good practices, and involvement of different stakeholders can be just in two and a half years! We can now

continue to further spread what we have learned and try to attract other stakeholders in making higher education more relevant to the labour market and to the expectations of young people.

## Foundation Knowledge at Work

Answers by **Daška Domljan, Jasenka Gojšić and Dr. Caroline Hornstein Tomić**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

*The Foundation Knowledge at Work, as a non-profit organisation, offers programmes which address the skills gap between education and the business sector to tackle the problem of employability and brain drain in Croatia. Developed in partnership with local educational*

*and public institutions, authorities and companies our programmes reach out to pupils as well as teachers on all levels of education. For pupils we offer job-shadowing opportunities to gain first-hand experience of work processes and business routines, seeking to encourage entrepreneurial curiosity and responsibility for career development. For educators we organize company visits and workshops to support practice-orientation, explorative learning and creativity stimulation in teaching. Just like their peers in the Danube Region, young people in Croatia lack entrepreneurship experience and awareness of the many options available in today's world of work. Transnational knowledge exchange has been a key motivation for us to join EDU-LAB.*



— **What is your most memorable EDU-LAB moment?**

*There were moments in the discussions where tensions within the consortium became apparent. However, instead of these moments turning into conflict, we managed to have fruitful discussions and gain insight into local problems and challenges.*

*EDU-LAB provided different opportunities for people to show at their best. Prof. Belina is a careful observer who does not waste many words. His lecture held in Vratsa on dual study programme development in Hungary was not only full of humour and honesty, but a great manifestation of deep, meaningful and thorough reflection.*

— **What is the added value of transnational cooperation?**

*Exchange of knowledge and experience, networking, joining forces to build up leverage on regional and European levels for policy and reform initiatives are certainly the great value of transnational cooperation. Moreover, gaining an understanding of shared issues, local differences and specificities as well as local solutions which might inspire solution-finding in other contexts.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*Different and specific interests are often hidden, but come out and are being expressed once cooperation starts. We tend to only see what our respective concern is – but real*

solutions emerge only when we cooperate cross-sector, enlarge our understanding of each other's professional language and logic, work and style.

Each time we invited our stakeholders to an event, we enlarged our common understanding of the topic, and our relationships deepened. Each stakeholder who participated in EDU-LAB stakeholder events recognized the value of the broadening of perspectives which the quadruple helix approach provides, especially in an international context.

Our cooperation with universities was strengthened during the project. Croatian Chambers got to know us better and recognised our role as intermediary.

— **How do you see the sustainability of EDU-LAB?**

The New Danubian Governance Model is a great resource for small local interventions, to be used via lectures, workshops or trainings. EDU-LAB pilots prove that it is possible, in many different ways, to enhance the practical side of higher

education. Digital materials could be localised and published. Conversations about the topic could continue. Effective PR measures, publicising and implementing what EDU-LAB has achieved, and first and foremost continuing to cooperate will provide the basis for sustainability.

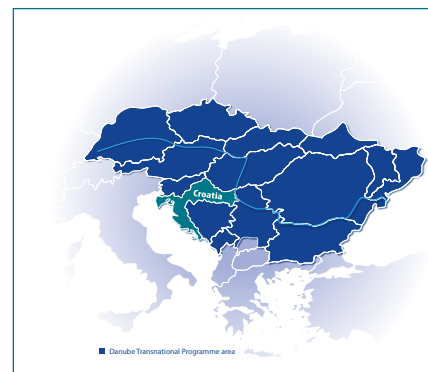
— **Name the most important tangible result that the project has brought for you.**

Getting a clear understanding of how the quadruple helix cooperation can work – most of all through intensified communication, change of perspectives and partnership behaviour.

We celebrated life in many different ways: having breakfast in small groups, lunches around larger tables or enjoying dinner fiestas. We danced, sang, hugged each other, found professional inspirations, friends and the luckiest even met their soulmates. Our meetings became much more than simple project activities. We became a tribe, maybe just for one voyage, but still.

# VERN' University of Applied Sciences

Answers by **Tea Gagro**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

VERN' University of Applied Sciences is the biggest and oldest private University in Croatia. As a University of Applied Sciences, VERN' has oriented towards educating experts for the needs of economic development and has spent a great on connecting the academic and the economic sector. This was done through including student apprenticeships as part of the obligatory curriculum and by establishing the OBRAD platform (acronym of Croatian words "education" and "work"). Through this, we strive to continuously connect the educational and business sectors through various activities that contribute to the development of the necessary knowledge

and skills for the labour market. This is especially important for us as brain drain in Croatia has reached its peak in the last 5 years. EDU-LAB is a natural extension of this as it served as an opportunity to work on a higher scale in connecting the triple helix and learning from different partners, and also making the necessary steps to stop the brain drain from our country.

— **What is your most memorable EDU-LAB moment?**

The first partner meeting and opening ceremony in Stuttgart. Meeting all the partners and learning about their experience, expertise and what they are bringing to the project as well as seeing how everything was well-organized was very encouraging and inspiring. At the partner meeting, while working together in groups with everyone, there was a sense of synergy and real partnership which was demonstrated and proved through the entire length of the project.

— **What is the added value of transnational cooperation?**

Sharing knowledge and experience, learning from the examples that really worked in practice as well as the mistakes that were made, brainstorming ideas with people from different fields which gives a multi-

disciplinary dimension, networking with people and institutions that we wouldn't usually meet, finding solutions for our region by discussing it with partners from similar backgrounds and locations.

— **Describe your experience with cooperating with stakeholders from different sectors.**

Cooperation with all stakeholders was successful and positive. As a private university, there was a lot of differences between our and other state-owned universities which required more communication and explanation in how things are done, but we have learned from each other's experiences and knowledge. Cooperation with the government has been successful in a way that the dialogue has begun and interest was shown for the future. In regards to the labour market, the cooperation was always successful and this has only strengthened, the employers are interested in getting better

skilled workers and are willing to cooperate in education system through apprenticeships and dual programs.

— **How do you see the sustainability of EDU-LAB?**

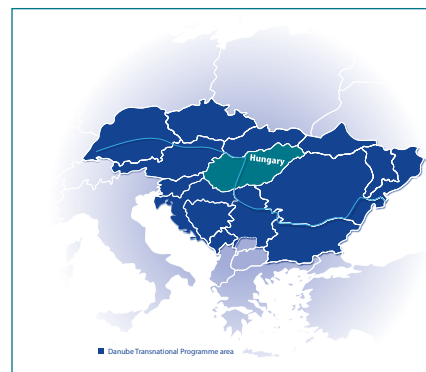
In the ongoing cooperation of all stakeholders involved even after end of project activities. The knowledge and documents generated in this project can and should be used even after its official ending.

— **Name the most important tangible result that the project has brought for you.**

Dual education is a fairly unknown and still not implemented concept in Croatia and this project has shown how important and how successful it can be. We have learned a lot from our partner's experience in this and are confident that we have gained enough input in order to implement it ourselves in the future.

# John von Neumann University

Answers by **Prof. Dr. Károly Belina, Eliza Angeli**



as all the meetings were very interesting and useful. In our opinion, the workshops and conferences were the most memorable events during the project. It was very interesting to learn about other experiences and approaches regarding strengthening practical education. It was also very interesting to discover that most universities are facing similar problems.

— **What is the added value of transnational cooperation?**

In our opinion, the added value of the transnational cooperation is the close cooperation with other universities. All cooperation with the partners were very useful, however we would highlight the one with the Slovak partners. The reason of it is that they were and are very serious about introducing professionally oriented higher education. They organised a trip to Kecskemét to study the Hungarian system. We had a very fruitful discussion on the educational model during their stay in Hungary.

— **Describe your experience with cooperating with stakeholders from different sectors.**

Hungary is the only country in the Danube Region where dual higher education programmes are present. Our goal during EDU-LAB was to

— **Please introduce your organisation and tell us about your motivation to take part in the project.**

John von Neumann University of Applied Sciences (JNU) is in Kecskemét at the centre of Hungary. It has five faculties, with the largest one being GAMF, the Faculty of Mechanical Engineering. The University was the first to introduce dual study programmes in higher education in Hungary. This was the reason why we joined the EDU-LAB project, to help partners in other countries to introduce dual higher education programmes. The other reason for our involvement in the project was to widen our partnerships.

— **What is your most memorable EDU-LAB moment?**

It is very difficult to choose only one



offer the opportunity for project participants from other countries of the region to exchange best practices with all the stakeholders involved in the dual education process in Hungary. Many stakeholder conferences, meetings, seminars were organised where we have developed a strong cooperation with stakeholders from different sectors.

— **How do you see the sustainability of EDU-LAB?**

EDU-LAB aims to provide better professional opportunities for young talents in the Danube Region. The sustainable development of the higher educational sector is vital, as it can motivate young people to study and work in the Danube Region and help limiting the more and more serious problem of brain

drain. In terms of sustainability, it would be important for the supporting system to be more user-friendly to come across less problems with administration and bureaucracy, and to have more uniform control systems in the participating countries.

— **Name the most important tangible result that the project has brought for you.**

The EDU-LAB project has brought two very important, tangible results for our team. First, we jointly developed the New Danubian Governance Model (NDGM) with the University of Maribor. NDGM was developed to offer a sustainable solution for the skilled-workforce emigration problem by developing a practice-oriented higher education model that

aligns education and training with the demands of the job market. The second tangible result is the revision and amendment of four existing e-learning courses and the develop-

ment of five new e-learning courses. These are based on our experiences at JNU and aim to help the partners in the project in implementing dual study programmes.

## Lucian Blaga University of Sibiu

Answers by **Prof. Dr. Livia Puia Ilie and Anca Șerban**



labour market. The university has been a witness to the brain-drain phenomenon and wanted to take action to stop this situation.

— **What is your most memorable EDU-LAB moment?**

The project has had many memorable moments but most relevant for us were the face-to face events in which the representatives of the triple helix worked together to find solutions for the identified problems. In particular, we enjoyed the work meeting in Maribor from January 2018. It was a very well-organized event and the work and discussions that took place during the two days resulted in excellent ideas on how to update the New Danubian Governance Model and the Policy guide. The environment and the interactions between the partners were extremely useful and pleasant.

**Please introduce your organisation and tell us about your motivation to take part in the project.**

Lucian Blaga University of Sibiu (LBUS) is a Romanian public higher education institution and one of the pillars of the community it serves by educating around 15 000 students. In this context, LBUS's participation in the project was motivated by the acknowledgement of the importance of aligning the education system to the actual needs of the





— **What is the added value of transnational cooperation?**

*Having a 360 degrees image of the situation in the Danube Region has been very enlightening for all the partners and also reassuring because it was important to acknowledge that, in spite of certain differences, there are similar problems and therefore there could be common solutions. We definitely broadened our minds by considering differences as a source for enrichment, especially when it came to the acknowledgement of administrative barriers in dual education in all the partner countries. Being able to share best practices of overcoming the common issues was priceless, especially considering that the situation in Romania is pretty similar to the one in Hungary,*

*from where we collected a series of solutions that we are currently implementing.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*For LBUS, the participation in the project created the perfect context for approaching the university's stakeholders and establishing a common ground for new ways of collaboration and designing curricula that are meant to help in better aligning the education system to the needs of the labour market. Having met with all the participating stakeholders, especially the representatives of the business environment constituted a major starting point in designing a new strategy of collaboration towards the desired results.*

— **How do you see the sustainability of EDU-LAB?**

*We consider that the results of the EDU-LAB project have been substantial, but we also acknowledge the importance of perpetuating the activities that have been developed and of continuing creating pilot projects in other countries. We have to use the tools that were designed, constantly refine the New Governance Model and test new approaches to common, complex, and deep-seated problems, creating new ideas and building capacities as they unfold.*

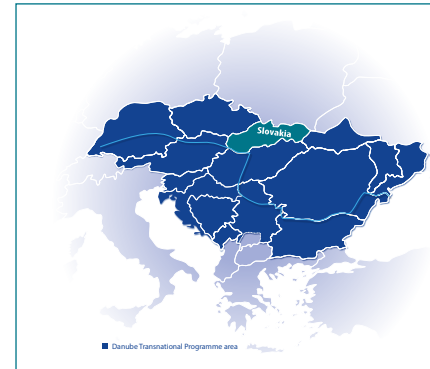
— **Name the most important tangible result that the project has brought for you.**

*The most valuable results of the project for LBUS are:*

- A better understanding of the needs of the labour market.*
- A tighter collaboration between the triple helix actors.*
- Learning from our partners how to develop new study programs as a result of the triple helix collaboration.*
- The participants developed a habit of cooperation and a strong sense of shared interests towards problem-solving.*

## Technical University of Košice

Answers by **Prof. Ing. Ervin Lumnitzer, PhD**



— **Please introduce your organization and tell us about your motivation to take part in the project.**

*The Technical University of Košice (TUKE) is a public university. It is a modern scientific institution offering programmes technological and economic fields. TUKE provides a wide range of educational opportunities at all three levels of study (undergraduate, graduate and PhD) in Slovak and English. TUKE caters to educational needs not only in Eastern Slovakia but throughout Slovakia and Central Europe. TUKE*



*closely cooperates with other universities and with industrial organizations in Slovakia.*

*The internationalization of the university has been one of the top priorities of TUKE and the education offers cover a broad variety of possibilities for both Slovak and foreign students from EU countries. We are actively pursuing various activities that aim to increase the share of foreign students at TUKE. In recent years there has been a considerable increase in demand from foreign students to study at the university, establishing TUKE on an international scale as a distinguished education institution. Students from forty countries attend the university.*

— **What is your most memorable EDU-LAB moment?**

*I consider the most serious and most memorable moment to achieve a closer connection between universities and practice.*

— **What is the added value of transnational cooperation?**

*The partners coming from different countries and thus the diversity of opinions. The different perspectives on the possibilities of solving the problem of the project, together with different ideas and approaches, accelerate synergy which contributes to the improvement of the students' position and the application of the graduates' knowledge in practice.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*For TUKE, it was helpful to learn about the needs, ideas and experiences of different stakeholders from different sectors. TUKE responds to these ideas, tries to take advantage of the opportunity and increase the interest in studying at university, to link learning with practice and consequently to increase the readiness of graduates to the real needs of practice.*

— **How do you see the sustainability of EDU-LAB?**

*The restructuring of Slovak higher education is not a short-term issue and will require even more time and more discussions with stakeholders. In any case, only the future shows what modifications of the current approaches are needed.*

*The reduction of the number of students in the 2nd level of education compared the total number of students has been a long-term trend. The industrial sector was given the opportunity to employ bachelor's degree graduates and the opportunity to modify the graduate's profile,*

*especially their practical skills. So far, however, we do not see an increased interest in practice in bachelor's degree at TUKE. However, the project's sustainability cannot be achieved without the cooperation of the Ministry of Education, Science, Research and Sport of the Slovak Republic.*

— **Name the most important tangible result that the project has brought for you.**

*Among the most important results of the project we advise:*

- *to promote the need for practical experience between stakeholders,*
- *organizing workshops with the participation of business organizations and educational advisers from secondary schools,*
- *establishing a very close cooperation between TUKE and T-Systems, which is the largest employer of our graduates,*
- *establishing long-term partnerships between TUKE and enterprises interested in preparing future graduates for practice according to their needs and requirements*

# German-Slovak Chamber of Industry and Commerce

Answers by **Eva Holúbeková, Monika Fehérová, Barbara Plachá**



## Please introduce your organisation and tell us about your motivation to take part in the project.

The German-Slovak Chamber of Industry and Commerce represents the general interest of its members - the employers and supports them in achieving their objectives. It addresses important concerns and issues of the business community. One of these concerns is the mismatch between education and labour market needs. The Chamber is famous for its long history of supporting the idea of combining apprenticeships in a company and vocational education, at the level of Slovak secondary schools. However, as there is a huge labour market demand for qualified people in the Slovak Republic, changes are neces-

sary also at the Slovak universities. Our member companies, acting mainly in the field of mechanical and electrical engineering, have experienced that universities do not adequately prepare young people for the working life. We at the Chamber understand the importance of linking education to labour market needs, and for this reason, we are intending to shape the opinions and decisions of political authorities.

## — What is your most memorable EDU-LAB moment?

There have been many memorable moments in the EDU-LAB project, on international as well as national level. However, if we must choose only one, it would be the International Conference on Professionally oriented Higher Education, organised in October 2018 in Bratislava. The conference offered the chance to gain new perspectives on the importance of professionally oriented study programmes. We were surprised by the high attendance and the lively debate during the panel discussion showing that many of the attendees found the issue current and interesting. This has motivated us to continue, even more actively, in our activities. Of course, we cannot forget to mention the

moment when we were informed about the accreditation of the first professionally oriented bachelor study programme in Slovakia. It was an incredible feeling to know that our effort bears fruits.

## — What is the added value of transnational cooperation?

The importance of the transnational cooperation might be explained by an inspirational quote written by Mattie Stepanek about the value of teamwork: "When there are teamwork and collaboration, wonderful things can be achieved." This might be applied when talking about EDU-LAB achievements as well. We believe that particularly the cooperation, with both international project partners and Slovak stakeholders, made the process of the accreditation of the first professionally oriented study programme in the Slovak Republic easier. We were able to use the best practices and practical guides of the countries in which such study programmes have already proven successful. During project meetings and company visits abroad, we got inspired with ideas on how to create a linkage between education and labour market needs that is suitable for the Slovak circumstances.

## — Describe your experience with cooperating with stakeholders from different sectors.

During the project, we have cooperated closely with the Automotive Industry Association of the Slovak Republic and with several stakeholders, which we believe was one of the engines of EDU-LAB's success in Slovakia. Each of these stakeholders have been involved for a different reason - some represented employers (Volkswagen Slovakia), some policymakers (the Ministry of Education) and some higher education institutions (the Slovak University of Technology in Bratislava). In order to reach our objectives, stakeholders' engagement in open dialogues has been essential. As they have brought in experiences and expertise, they have contributed to new ideas and given rise to different possibilities for improvements. With the help of the accreditation commission, we supported the process of preparation of the criteria for professionally oriented bachelor study programmes.

## — How do you see the sustainability of EDU-LAB?

EDU-LAB has addressed a very current issue in most Eastern European countries. Some changes have already started - we have raised the awareness not only of the policymakers, employers and universities, but also of the public. However, we believe that further steps are necessary to be taken in the future. The German-Slovak Chamber of Industry and Commerce will continue its

mission to support the implementation of more professionally oriented study programmes in the Slovak Republic, in order to meet the labour market requirements. We have decided to establish a platform where we will demonstrate the gained experience and competency and we will provide a guideline for those interested in the issue.

— **Name the most important tangible result that the project has brought for you.**

Firstly, it was the accreditation of the first professionally oriented bachelor study programme in Slovakia. Secondly, the Ministry of Education

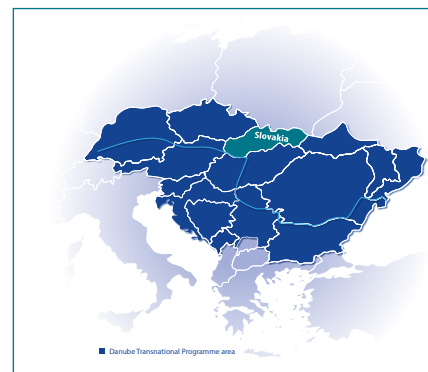
has officially supported the implementation of more professionally oriented bachelor study programmes by allocating financial means (around 15 million Euros) for projects aiming to link education to labour market needs. Thirdly, we have succeeded in creating a dialogue about the importance of changes in tertiary education and raised the awareness of the public, among many activities especially with the first conference on this topic in Slovakia.



German-Slovak Chamber of Industry and Commerce / Automotive Industry Association of the Slovak Republic

# Automotive Industry Association of the Slovak Republic

Answers by **Jaroslav Holeček, Alexander Matušek, Henrich Hipča**



Slovakia's competitiveness. We have been losing the best students who are leaving to study and work abroad.

— **What is your most memorable EDU-LAB moment?**

The most memorable moment for the Slovak partners in the EDU-LAB project was the accreditation of the first professionally oriented bachelor study programme in September 2018. Nonetheless, later in February 2019, it was also very reassuring to hear that there are quite a few other universities eager to cooperate regionally with companies to set up new professionally oriented bachelor-level study programmes. Several Slovak universities applied for funding under the Call for proposals of the Ministry of Education released in December 2018.

— **Please introduce your organisation and tell us about your motivation to take part in the project.**

The Automotive Industry Association of the Slovak Republic (AIA SR) supports all stakeholders in reforming the tertiary education system in Slovakia. Employers in Slovakia concur that the current tertiary education system is unable to respond effectively to the changing labour market demands. Not enough students graduate with the right skills set, particularly in mechanical and electrical engineering. The education system is not meeting the labour market requirements which results in a critical shortage of skilled workers for key sectors and has a direct impact on

— **What is the added value of transnational cooperation?**

During numerous meetings with representatives from the Slovak Technical University, the Ministry of Education, Volkswagen Slovakia as well as numerous other companies, we were able to use the EDU-LAB outputs achieved through effective transnational cooperation. For instance, best practices and practical

guides proved to be useful to get further ideas for improving the pilot bachelor study programme in the automotive industry in Slovakia. To be able to design and improve the existing pilot study programme we further sought help also from abroad. Visits to Hungary, Germany and meeting with Slovenian colleagues helped in gaining and exchanging further knowledge and experience about the professionally oriented study programmes. Thanks to good transnational partnership we spread the good practice during the conference in October 2018, co-organised with the German-Slovak Chamber of Industry and Commerce under the auspices of the Ministry of Education in Bratislava.

— **Describe your experience with cooperating with stakeholders from different sectors.**

We started our Interreg EDU-LAB project in the second half of 2016 in close cooperation with the Slovak-German Chamber of Industry and Commerce. We formed a very good team and together with the accreditation commission we prepared the accreditation criteria for professionally oriented bachelor study programmes. The Ministry of Education's approval of the specific accreditation criteria for professional bachelor programmes in the beginning of 2018 provided clearly defined conditions for cooperation between universities and employers and other stakeholders in professionally oriented higher education in Slovakia.

We worked closely with the Slovak-German Chamber of Industry and Commerce on the specific plan for implementation of a pilot professionally oriented study programme together with the Slovak Technical University and Volkswagen Slovakia.

— **How do you see the sustainability of EDU-LAB?**

The aim of the Automotive Industry Association (and the Association of Industrial Unions) is to further bring together representatives of the state administration and those of industrial associations to interconnect them as much as possible in the effort to make the education relevant for the industry. If we succeed, we will increase the number and quality of graduates from technical schools, thus reducing the number of unemployed university graduates and inefficiency in spending of funds allocated to education.

— **Name the most important tangible result that the project has brought for you.**

The first professionally oriented bachelor study programme accredited in September 2018 could be considered as one of the main milestones. The programme started with 28 students who began their four-year bachelor studies at the Slovak Technical University, with a curriculum including a year-long practical training in cooperation with eight companies in the automotive industry. Later, the Ministry of Education took auspices of a

major event co-organised by EDU-LAB partners, with about 150 representatives from companies, universities and policy makers who made a common statement on the state of the professionally oriented higher education. The EDU-LAB partners helped the Ministry of Education to formulate criteria of a Call for proposals aimed at the creation of new

cooperation partnerships for universities and companies or other relevant key stakeholders. The Ministry of Education allocated around 15 million Euros on the Call for proposals as financial support for projects aimed at the creation of new professionally oriented bachelor programmes. The result of the Call issued in December 2018 is yet to be seen.

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## University of Maribor

Answers by **Sebastijan Frumen, Robert Presker and Prof. Dr. Nataša Vaupotič**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

The University of Maribor is the second largest university in Slovenia and the largest knowledge provider in the East Slovenia cohesion region

with approximately 13.600 students and 17 faculties offering a broad spectrum of study programmes in the humanities and social and natural sciences. It is becoming a central development institution attracting talented students from all over the world and providing a development context where excellence is at home at all levels. Various international awards prove that the university is on the right track. It is very entrepreneurially oriented and thus has established strong partnerships with businesses, governmental and non-governmental organisations and other institutions. Through these partnerships, concrete projects have been initiated, contributing to new jobs and new products with high added value, addressing key societal issues, and



*promoting sustainable development and contributing to the public good. Regarding regional cooperation, an important focus is given to the Danube Region, where the University is involved in various projects and initiatives.*

— **What is your most memorable EDU-LAB moment?**

*It would be difficult to pinpoint just one special moment within the scope of activities carried out in cooperation with our partners in the EDU-LAB project. However, it was most certainly the relaxed atmosphere and joint efforts that led to the creation of the NDGM strategic document, with meetings in different countries of the Danube Region playing a part in the identification of issues in our home countries that*

*have turned out to be more or less the same, only within a different context. The modus operandi where the input of each partner is instrumental for the overall result has proven successful. Finally yet importantly, an invaluable contribution of such projects is undoubtedly the social side of the events organized by partners to present their culture, customs and cuisine. That being said, we are already looking forward to the closing event of the project in May 2019 in Zagreb, which promises a rich social programme.*

— **What is the added value of transnational cooperation?**

*EDU-LAB enabled us to share the challenges which we are facing in the higher education area with colleagues from our neighbouring*

*countries. It was interesting and fun to discuss ideas and search for solutions, which could work generally for the whole partnership. It was also an opportunity to learn something new about the culture of countries and cities involved in the project. All in all, it was a great group of people, experts, who helped each other to make the next step in connecting higher education with regional businesses. We made new connections and friendships which we want to maintain and find further ways to share our knowledge and experiences in the future.*

— **Describe your experience with cooperating with stakeholders from different sectors.**

*The word that would best describe the experience of cooperating with stakeholders from the business sector and policy makers would be growth. We grew in our understanding of each other's views, challenges and expectations. What we found out was that we basically want the same thing and see goals in a very similar way. However, we have to work on our constant communication through which we will be able to coordinate the steps that are necessary to achieve the desired goals. EDU-LAB enabled us to strengthen our communication and to get to know each other. We believe that we have set some sound foundations for our further work.*

— **How do you see the sustainability of EDU-LAB?**

*In the policy guide on how to actually implement the New Danubian Governance Model, we have set some very concrete steps that can be taken in the future by any country interested in further strengthening the intersectoral cooperation of education, politics and business. We believe that the sustainability of EDU-LAB will live in those steps that countries will indeed take on the basis what we have learned during EDU-LAB and what we suggested. Furthermore, we are already thinking about the possibilities of continuing the outlined path, especially in the direction of tackling the skills mismatch problems with implementing short educational courses focused directly on the defined mismatches.*

— **Name the most important tangible result that the project has brought for you.**

*Based on the obtained opinions from economy representatives, we find that graduates come to the labour market with good theoretical knowledge, but lacking transferable and soft skills that are important for employers and consequently students' smooth transition to the labour market. In cooperation with employers, the University of Maribor made an important step in this direction in 2017 with the University having an active role in the EDU-LAB project. The progress has been made on the provision of sufficient professional training within the*

second-cycle study programmes that will include professional training as an elective part evaluated with 6 ECTS credits for a month of training. The professional training will be carried out in accordance with the pilot project and it will first

be implemented in the study programmes in the field of engineering, natural sciences and mathematics, and then in as many second-cycle study programmes in other UM study fields as possible.

## Regional development agency of Northern Primorska Ltd. Nova Gorica

Answers by **Maruša Kuštrin** and **Črtomir Špacapan**



— **Please introduce your organization and tell us about your motivation to take part in the project.**

The Regional development agency of Northern Primorska Ltd. Nova Gorica is following three key development priorities of the Goriška region. The cooperation in the EDU-LAB project was an opportunity to improve our first development priority, which is to raise competi-

tiveness, innovation and employment opportunities in the region. The region struggles with linking regional higher education institutions with local businesses and other organizations. The goal of regional policy makers is to establish Goriška the region as an internationally attractive destination for study and research. Consequently, increasing the employability of young people improves conditions for a better quality of life of the inhabitants of the Goriška region and fosters sustainable, environmental and spatial infrastructural development, which are the other two development priorities of our region.

— **What is your most memorable EDU-LAB moment?**

For us, the best working process of the EDU-LAB project were the two workshops in Maribor, when project partners together with stakeholders



were working on the development of the New Danubian Governance Model. That was the most creative and promising event in the project. The stakeholders and project partners were very motivated to create a useful model that can be implemented in all the countries cooperating in the project. It was the moment when you could feel that whole Danube Region is facing the same issue (brain drain) and everyone was very motivated to find the best possible solution to limit it. Partners were exchanging opinions and experiences and it was a very good learning process with a great outcome – The New Danubian Governance Model.

— **What is the added value of transnational cooperation?**

European transnational projects are an opportunity for organizations to share experiences and knowledge on specific topics that the project is addressing. Of course, not all best practices are applicable in all other cooperating countries in the same form, every partner should recognize what is best for their specific environment. The most important aspect of transnational cooperation is the exchange of knowledge and experience while solving common problems – no matter if the issue is common for many areas or if it is a bigger transnational issue (for example brain drain in the Danube Region). Cooperating with partners from many countries also

allows project results to have more impact since they reach a broader public.

— **Describe your experience with cooperating with stakeholders from different sectors.**

Since cooperating in the EDU-LAB project, we included stakeholders from policy makers and higher education institutions from our region who saw the benefit of this kind of cooperation. We already used some of the project's results for identifying the current state. In the Goriška region, there are many private faculties that have a lot of interest in offering students something different from other universities that could be an advantage. The important thing for our organization as a regional development agency was to be able to get the insight of all relevant stakeholders to see in which direction the further development of our region should go.

— **How do you see the sustainability of EDU-LAB?**

In our opinion, how the project results will be sustainable depends mostly on how the partners of the project will try to implement all the

results and steps that we developed in the project. We will also see how the wider public will accept the results at our final conference. If we manage to influence policy makers, the management of higher education institutions and the business sector to understand how crucial professionally oriented study programmes are, we are on a good way to assure the sustainability of the project achievements.

— **Name the most important tangible result that the project has brought for you.**

Besides the guidelines for the implementation of the New Danubian Governance Model, which is a very well-prepared document, we see the importance of the wide network that was established through the implementation of the project. This network includes partners and stakeholders from institutions that are crucial for the creation of more professionally oriented study programmes. Furthermore, it includes both organizations with more and with less experience in this area, so together they can sustain the cooperation to create better chances for young people in the Danube Region.

# Mechanical Engineering Faculty of the University of Sarajevo

Answers by **prof. dr. Izet Bijelonja** and **prof. dr. Mugdim Pašić**



— **What is your most memorable EDU-LAB moment?**

Almost everything was memorable during the implementation of the project. Every activity in the project had a challenge and a sense of enjoyment. We will always remember joint meetings of the project partners as well as their presentations. Those were the moments when we felt we were sharing experience and values with others as well as an opportunity for our own growth. Every time we had those meetings, we felt that they had added value both for us personally and our institution. We appreciated visits to the companies where we could see ourselves results of the implementation of the ideas raised in the project. Also, we appreciate the experiences and knowledge of our partners who already have implemented certain models of dual education.

— **Please introduce your organization and tell us about your motivation to take part in the project.**

The Mechanical Engineering Faculty (MEF) of the University of Sarajevo is a leading higher education institution in Bosnia and Herzegovina which provides educational, training and technical support within its scope of the work. EDU-LAB project enabled MEF to test specific innovative actions promoting advanced labour market policies. The project provided insights into best practices related to the increase of the labour market relevance of higher education in the region, aiming to retain more young talents studying and working in Bosnia and Herzegovina.

— **What is the added value of transnational cooperation?**

One of the strategic aims of the Mechanical Engineering Faculty of the University of Sarajevo is internationalization and integration in the European Higher Education Area. This project helped us in achieving this aim. We had the opportunity to





identify our strengths and weaknesses working together with our project partners from more developed countries of the Danube Region as well as with other countries in the region. Also, through participation in the project we gained valuable experience in team work in an international environment which is very important for the future development of MEF.

— Describe your experience with cooperating with stakeholders from different sectors.

We noticed that stakeholders from different sectors were very interested in the implementation of the project. We believe that it is because they themselves wanted to learn and listen to something that is coming from more developed countries

from the Danube Region. Since there is a high rate of migration of young people to developed countries, they also want young people to stay in the country and contribute to the development of the economy of the country. This project contributes to a better understanding of the relevance of higher education to the needs of the labour market. So, the decisions of stakeholders could be adjusted to those needs.

— How do you see the sustainability of EDU-LAB?

We see the sustainability of EDU-LAB in implementing dual education as a pilot project in our country. We gained a certain knowledge and experience, learned about certain models of dual type of education but implementation is yet another

challenge. Since the lowest rate of unemployment is in the countries who introduced dual education it would be of great interest to see if a certain model of dual education would lead to positive results and a better environment. Also, an efficient triple helix model would lead to a better understanding of the needs of the different stakeholders involved as well as to gaining better results in the implementation.

— Name the most important tangible result that the project has brought for you.

Creation of a new mindset and perception of dual education in order to make higher education more relevant to the needs of the labour market

Encouragement of young people to stay in the country and to contribute to the development of the country's economy

Improvement of cooperation between business, higher education and public authorities

Encouragement of the further development of Higher Education Acts  
Fostering the creation of more professionally oriented study programmes

## Entrepreneurship and Business Association LiNK Mostar

Answers by **Alisa Gekić**



— Please introduce your organization and tell us about your motivation to take part in the project.

Entrepreneurship and Business Association LiNK Mostar was founded in 2001 with the purpose of providing support to economic development, employment and education in Bosnia and Herzegovina. Taking into account that a lot of young people are leaving the country, looking for employment and better conditions in other European countries, Association LiNK started to intensively work on the urgent issue of brain



drain. Led by the vision that economic development relies heavily on quality education and adequate opportunities for employment, the cooperation on the EDU-LAB project was a great opportunity to contribute to limiting the brain drain of the young people of Bosnia and Herzegovina, but also to exchange knowledge and learn from others.

— **What is your most memorable EDU-LAB moment?**

The most memorable EDU-LAB moment for LiNK's team was definitely the first face-to-face training where experiences and ideas were exchanged among experts from all sectors from the region. Study visits to partner companies, of dual education in Hungary, were memorable as well, as we had the opportunity

to see dual education being implemented in practise.

— **What is the added value of transnational cooperation?**

The added value of transnational cooperation is for sure the know-how. We, from Bosnia and Herzegovina, had a lot to learn from our partners from other countries, considering that some of them have already gone through the process of educational reform and have already resolved issues that our education system is currently facing. Their experiences and ways of facing common obstacles were revealing for us and I am sure that higher education institutions in Bosnia and Herzegovina will use some of those methods in the following period.

— **Describe your experience with cooperating with stakeholders from different sectors.**

The beauty of EDU-LAB was definitely gathering all relevant stakeholders together: the public sector, higher education, the business sector and business support organisations. It was of huge importance to gather all these sectors because results and changes can only be done with the involvement of all of them. It was truly a great experience to work with experts from different branches and different countries of the region and come to the conclusion that we are all so different but we all have so much in common. We all share similar issues and concerns, and we all have the same goal: to change and improve the system so that young people don't have to leave.

— **How do you see the sustainability of EDU-LAB?**

Considering that all stakeholders and partners included in EDU-LAB are all committed to better link education to employment to prevent brain drain, we think that the sustainability of EDU-LAB is not questionable at all. All these models and tools which were developed within the project will be in use and will be available to new stakeholders as well, which will additionally ensure sustainability.

— **Name the most important tangible result that the project has brought for you.**

The most important tangible result for us is definitely the New Danubian Governance Model, considering that Bosnia and Herzegovina is still in the process of introducing professionally oriented study programmes. This Model, with its concrete details and information, will serve as the basis and a guide for further activities.

# Development Agency of the Una-Sana Canton

Answers by **Dijana Dedić**



## — Please introduce your organisation and tell us about your motivation to take part in the project.

The Development Agency of the Una-Sana Canton is a public institution established by the Assembly of the Una – Sana Canton with the aim to improve the current economic situation in our Canton. We are a small institution with six young and enthusiastic employees. We work mostly on the implementation of EU-funded projects, strategic planning and the coordination of the EU integration process for our Canton.. Our motivation for participating in EDU-LAB was to improve the current situation in the field of education and help our Ministry of Education, Science, Culture and

*Sport to create more – practice-oriented study programmes, to help them with the creation of a dual education system and to have an impact on stopping the brain drain that is currently one of the biggest problems in our country.*

## — What is your most memorable EDU-LAB moment?

*Well, it is hard to have only one memorable moment from a project that lasted two and half years. very meeting in person is a memorable moment whether it was in Kecskemét or in Vratsa or in Belgrade. If we need to pick just one, it would be definitely the networking dinner we had in Vratsa when Ágnes (Sebestyén) and Dijana (Štrbac) had their birthdays. The music, warm welcome of our hosts, atmosphere, good mood and singing made that night unforgettable. I worked on many EU-funded projects but I have never met such a compact group like we are on this project.*

## — What is the added value of transnational cooperation?

*The added values are meeting new people, new cultures, new places and mentality. Also, an added value is seeing that sometimes others are not better than you or that some-*



*times they are, and you can see how things are functioning in other countries. Sometimes participating in transnational project creates creativity in your team, inspires them, and generally makes them better, more productive and motivated. At the end of the day, the result is having friends all around Europe and a group of people that want to work together again so they are creating new projects and ways of cooperation.*

## — Describe your experience with cooperating with stakeholders from different sectors.

*Working in the Development Agency of the Una-Sana Canton we have the privilege to work with stakeholders from different sectors all the time. As a result, you always*

*have a group of people with different perspectives, experiences, different views and ideas. When creating something new, it is always good to have people that work on the same thing as you do but from different sides. What you see one way, others see it an other way and we all make one whole. Stakeholders usually have more concrete solutions and they are more experienced in all areas because they are dealing with some field daily, not only as one of the activities.*

## — How do you see the sustainability of EDU-LAB?

*The basic value of this project is the knowledge and experience that partners shared among them. The sustainability of this project will be assured through the creation of new*

study programs at the universities of countries that participated in this project and using the knowledge of countries that are already in this process for decades. Also, using the “New Danubian Governance Model” as well as the online courses that have been created and they are made for specific groups such as universities, private companies or public institution.

— **Describe your experience with cooperating with stakeholders from different sectors.**

Here in Una-Sana we started talking about developing dual system education programs in schools and at

the university. There is actually one school that used the knowledge and experience from EDU-LAB and created a new curriculum that will consist of theoretical and practical knowledge. At the same time, it is a curriculum for a vocation that is currently highly needed on the market. Also, creating a New Danubian Governance Model is something that will benefit not only us but every partner because it consists of experiences from countries e.g. Germany that we can use as well. It is not a document for a “shelf life” but it is a document full of experiences and advice.

## Department for Development and International Projects of Zenica-Doboj Canton

Answers by **Darmin Makic**



**Please introduce your organisation and tell us about your motivation to take part in the project.**

The Department for Development and International Projects of Zenica-Doboj Canton (DDIP) is an Expert Department of the Government of Zenica-Doboj Canton that works on the implementation of interregional projects and strategic planning processes aiming to benefit the development of Zenica-Doboj Canton. The employees of the



Department were motivated to work together in the EDU-LAB project since many young people in Bosnia and Herzegovina, and in the region of Zenica-Doboj Canton too, are well-educated and talented but a significant number of them is thinking about leaving. The country, however, cannot afford such accelerated brain drain. Through EDU-LAB, we expected to slow down this process, by giving the youth opportunities to express themselves and to create a better environment for them with better professional chances.

— **What is your most memorable EDU-LAB moment?**

The most memorable EDU-LAB moment for DDIP’s team was the signing of the document “Our com-

mitment to develop chances for young people” by all project partners during the Kick-off event in Stuttgart. It was the opportunity for all members of the project team to see that the developed project activities will be implemented with the efforts of all members of the EDU-LAB community, aiming to improve the professional chances of young people.

— **What is the added value of transnational cooperation?**

The added value of transnational cooperation is certainly the experience of other project partners and their stakeholders. Zenica-Doboj Canton needs to learn a lot from partners from other countries, especially in the field of professionally oriented study programmes. Higher

education institutions in Bosnia and Herzegovina are facing many problems, such as a lack of cooperation between higher education institutions and companies and the lack of professional staff. The experience that DDIP's team have gained during the EDU-LAB project may in many ways help resolve issues that our education system is facing.

— **Describe your experience with cooperating with stakeholders from different sectors.**

During the cooperation with the EDU-LAB stakeholders, the DDIP team have learned a lot about different fields in which the stakeholders were involved in. It was an opportunity to get another view on how to tackle different tasks and challenges aiming to achieve the goals of the project. The beneficial aspect of cooperation with stakeholders was the extraordinary experience to visit their professional fields. It was of huge importance to gather the experience from stakeholders from all three sectors (the public sector, the business sector and higher education) because results and changes can only be achieved with the involvement of all of them, having the same goal: to create an environment with better professional chances for young people by strengthening the regional economic development.

— **How do you see the sustainability of EDU-LAB?**

With the achieved results, different established sectors, developed

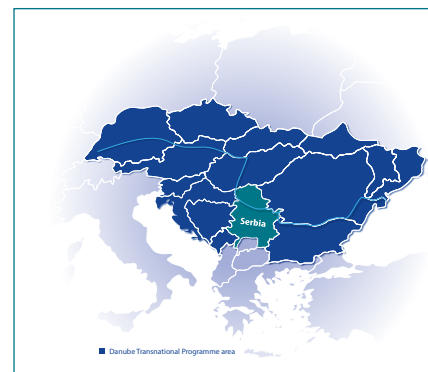
study programs, EDU-LAB will significantly help many young talents to study and work in the Danube Region, which was one of the main goals of the project itself. Since Zenica-Doboj Canton represents the regional public authority, the sustainability of EDU-LAB could be ensured through implementing dual learning initiatives, as it would be of great significance to link education institutions and the business sector. Such cooperation would create new opportunities in education, such as practise-oriented study programmes, contributing to a better living environment and social development.

— **Name the most important tangible result that the project has brought for you.**

The most important tangible results of the project are: the exchange of experience between project partners, the implementation of project strategies, developing different study programmes and providing the opportunities to many young people to study and work in the Danube region. After all, the ultimate result of the project is developing a life-long learning system and establishing cooperation between universities and companies. By lobbying for Higher Educational Law amendments for establishing professionally oriented study programmes, we can increase employment opportunities and create more chances for young people.

## Institute Mihailo Pupin

Answers by **prof. Djuro Kutlača, Dusica Semenčenko and Dijana Štrbac**



— **Please introduce your organization and tell us about your motivation to take part in the project.**

Institute “Mihailo Pupin” (IMP) is a leading research and development institution and model for integration of education, research and innovation which transforms knowledge into technologies and marketable products. The Science and Technology Policy Research Centre of the Institute “Mihailo Pupin” has for more than thirty years been hosting an interdisciplinary team of experts who deal with issues connected to the development and improvement of the national innovation system (NIS) in Serbia, the better understanding of the importance of science and technology for overall development and helping to formulate appropriate development

strategies. The theme and the goal of the project fitted perfectly into our organization's agenda and we were really intrigued to work on EDU-LAB.

The motivation of the IMP team members was also to understand the main problems in the thematic area of the project and contribute to improving education systems and policies on national and regional level.

— **What is your most memorable EDU-LAB moment?**

It is very difficult to choose only one moment since the project included many learning interactions not only with project partners, but also with external stakeholders, so there are several memorable moments:

When the EDU-LAB e-learning courses finally became available to students and other users with the idea to promote professionally-oriented study programmes Meetings with project partners, especially those with brainstorming sessions when we could share ideas with other participants (e.g. developing the New Danubian Governance Model)

Visits to companies in Kecskemét and Bratislava are also memorable moments, especially for us who are coming from academia, as they provide the opportunity to be in



close contact with employees and students of dual studies

When the Ministry of Education, Science and Technological Development of the Republic of Serbia decided to launch activities in order to develop “The Law for Regulation of the Dual Model of Study in Higher Education”, inviting IMP team leader, prof. dr Djuro Kutlaca to become a member of the Working group for drafting this legislation For Dijana Štrbac, an unforgettable personal moment was definitely her birthday celebration organised by the EDU-LAB project partners in Vratsa, Bulgaria

— **What is the added value of transnational cooperation?**

Transnational cooperation is always beneficial since it widens our expe-

rience and understanding of certain processes. It helps to look beyond the limits of the national framework, sharing practical know-how, broadening professional networks and planning future activities. The exchange of experience with peers from the region is the most valuable gain of transnational project cooperation. This is a kind of accumulation of the knowledge from different parts of the region with the aim to be useful for all, once when it gains a planned or desired shape. Within the EDU-LAB project it helped us to understand different challenges and evaluate solutions in the field of introducing professionally oriented study programmes.

— **Describe your experience with cooperating with stakeholders from different sectors.**

The EDU-LAB project provides a very rare chance to bring academia, government and industry together, making the idea of a triple helix into reality. The project is also an opportunity to transform market competition into cooperation. However, it is not so easy to make people interested in some issues which you consider very important, but others do not have, at the moment, enough understanding for. This applies in particular to people in high positions at ministries and to people in the business sector too, who are frequently running out of time. Our task was to connect these two parts of the triple helix, and additionally stakeholders from universities. Although we are very often in this position when running projects with different aspects of NIS development, this time it was easier with the support from the experience of colleagues from the region. We had the most intensive cooperation with stakeholders from different sectors within work package 6 – a pilot testing aiming to improve study programmes in accordance with the needs of companies. This was an enriching experience where companies and higher education institutions shared the same goal – increasing the employability of the graduates.

— **How do you see the sustainability of EDU-LAB?**

The EDU-LAB outputs are freely

available for use and improvement after the end of the project, for example, the e-learning courses or the New Danubian Governance Model. Also, professional networks established within the project will be involved in different activities in the future.

Since the outcomes of the project are important for the reforms in higher education in Serbia, and it is just the beginning of the process, there will be space for monitoring and probably improvements of the newly established system. Colleagues from countries which already began with the application of a dual education system pointed out some possible issues and the necessity of improving the system, so we together, based on our project results, have to go on.

The real sustainability of the EDU-LAB project depends on the understanding that this activity requires long-term support to the efforts of the institutions and individuals of all partners of the EDU-LAB project, both at the national and the Danube region level.

— **Name the most important tangible result that the project has brought for you.**

Knowledge acquired in the area of creating professionally oriented study programs in higher education. The various learning interactions and site visits helped us understand the importance of dual study programmes, its practical implementation and all the issues that come up in the process.

Also, the e-learning courses developed within the EDU-LAB project. They aim to increase awareness of the benefits of linking education to employment and offer an overview of the possible steps that could be taken to achieve this.

Above all, it is the recognition of the importance of starting the imple-

mentation of dual studies in higher education in Serbia, and the beginning of the design of appropriate legislation. We are very proud that prof. Djuro Kutlača was involved in creating the draft text of the Law for Regulation of the Dual Model of Study in Higher Education in the Republic of Serbia.

## Chamber of Commerce and Industry of Serbia

Answers by **Ivana Kovačević**



— **Please introduce your organisation and tell us about your motivation to take part in the project.**

The Chamber of Commerce and Industry of Serbia (CCIS) was founded over 150 years ago and is today the leading business association in Serbia. Among many other activities

and services, the most important pillars of the organisation are: representing the interests of the economy before the Serbian Government and other state bodies and institutions, supporting domestic and international companies through services, mediation, consulting and business information, the internationalization of Serbian business through the improvement of international economic cooperation and promoting Serbia as a good investment destination. CCIS is also very prominent in the organization of business training and education in order to improve the competences and skills of employees and managers and to build their capacity. Our motivation to take part in this project was the opportunity to be involved in a variety of activities which could help us pave our own

path in the process of changing the system of education. We wanted to learn from other partners' experience and share best practices.

— **What is your most memorable EDU-LAB moment?**

Every SCOM and partner meeting was memorable. Despite representing different countries and coming from different backgrounds, we had similar ways of thinking, energy and interests. This enabled us to work hard but also to have so many treasurable moments.

What is the added value of transnational cooperation?

The added value is cooperation across borders which can help us in tackling similar issues existing in different countries and provide us with solutions to the problems. Furthermore, it allows exchange of experience and transfer of know-how.

— **Describe your experience with cooperating with stakeholders from different sectors.**

As already mentioned, it was an invaluable opportunity to meet and cooperate with different sector representatives, hear the challenges they are facing and the models of cooperation they established in their countries. It is certain that we will continue to cooperate even beyond this project since we identified some more areas that are interesting for all of us where we could share our experience and knowledge. For example, our Bosnian colleagues invited us to share the experience of Serbia in the process of the imple-

mentation of dual education in the vocational education and training (VET) system. Furthermore, our colleagues from Hungary, for instance the Hungarian Chamber of Commerce and Industry expressed their readiness to share their experience in implementing dual study programmes and help us better identify the challenges that might occur.

— **How do you see the sustainability of EDU-LAB?**

For Serbia, the project represents one of the milestones in higher education reforms, since it facilitated the drafting of a new Law on Dual Education in Higher Education. Through this project, we have established a coordination point which will certainly be instrumental in further drafting this law, as well as in providing proposals for further reforms in education. In the course of the project we have piloted a study programme with dual elements which identified the impediments, possible solutions and other important issues which should be regulated by this new law so as to facilitate the successful implementation of the model.

— **Name the most important tangible result that the project has brought for you.**

The most important tangible result that the project has brought for us is initiating improved work-based learning and better cooperation between representatives of educational institutions, the business sector and the Ministry of Education.

*This triple helix concept is essential for further activities, better understanding of each other's needs and finding the right solutions. The system of education may not change*

*fast and introducing changes can take a long time but as Warren Buffett said, "Someone's sitting in the shade today because someone planted a tree a long time ago".*

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## Danube Rector's Conference

Answers by **Mag. Friedrich Faulhammer**

— **Please tell us about your role in the project. In what way were you involved?**

*The Danube Rectors' Conference (DRC) is one of the associated strategic partners of the project. As then president of the DRC, I have been representing our network of 64 universities in the Danube Region. My role therefore was primarily to participate in the work package 4 (New Danubian Governance Model) on the one hand and to disseminate information about the ongoing development of EDU-LAB to our partners on the other hand. However, as rector of a university for continuing education, I was also personally interested in the exchange with the different stakeholders. There is a tremendous potential of young talents in our region and we have the responsibility to ensure equal chances despite the different challenges for the countries. In that sense, my role was to facilitate the discussion but also to learn from this debate and subsequently apply the findings both in my "daily" business as rector as well as in shaping the agenda of the DRC. For instance, it*

*was useful to see how the University of Maribor, the leaders of the work package, facilitated a dialogue in such a transdisciplinary environment. In our daily work at the Danube University Krems, we also regularly interact with the "world outside of university" and cooperate with very different stakeholders.*

— **How do you see the long-term impact of EDU-LAB?**

*I am convinced that the Danubian Charter, the final document of the project that condenses the results of a two-year participatory process of different stakeholders from 10 countries will ensure that the ideas behind EDU-LAB continue to improve professional chances of young people in the Danube Region. I believe that far more countries will apply the New Danubian Governance Model and it might even serve as a basis for tackling the challenges of migration of highly-trained individuals even beyond our target area, as this is a phenomenon not only limited to the Danube Region. The General Assembly of DRC has already decided in last November to stay with the*

*outcome of the project and be a partner for the implementation of the new model. Our university will be one of the ambassadors of this new way of governing. In some regions, universities are not that open to work with companies, fearing that it could lead to sacrificing quality.*

*However, EDU-LAB showed a model of working together. I personally will continue to support the efforts also within the DRC and I am very much looking forward to further cooperate within the established context of the project.*

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## Ministry of Education and Science in Bulgaria

Answers by **Ivana Radonova**

— **Please tell us about your role in the project. In what way were you involved?**

*We accepted the invitation to be Associated Partners which is a less direct involvement in the project. We followed the preparation of materials and the discussions on higher education and labour market relations in Bulgaria. We supported the Bulgarian universities involved in the project in their activities as well. We set up a higher education directory, and took part in coordinating, participating at events. Putting together legislative documents in respect to vocational education and*

*training was also part of our activities. What I was struck by is how good the cooperation was between the Bulgarian partners.*

— **How do you see the long-term impact of EDU-LAB?**

*EDU-LAB can change the training environment in a very positive way. It is not possible to include dual training in all fields but where it is, it can greatly improve the quality of professional training. The Danubian Charter for Young Talents is a good way to have the basis, now we have to keep on building.*

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## Ministry of Science, Education in Croatia

— **Please tell us about your role in the project. In what way were you involved?**

*The Ministry of Science and Education of the Republic of Croatia took*

*part in the project as an associated strategic partner, participating in the 1st Steering Committee Meeting and the Kick-off Conference (March 2017). At the meeting, the Ministry's*



representative presented measures implemented by the Ministry with the aim of increasing the relevance of education in terms of labour market needs (through developing the Croatian Qualifications Framework and the project of increasing the share and quality of work placements in study programmes). The Ministry encouraged the participation of Croatian higher education institutions in the project and as a result, a University of Zagreb representative held a presentation at the EDU-LAB seminar and workshop held in Maribor in September 2017.

The representatives of the Ministry

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## Ministry of Education, Science and Sport in Slovenia

Answers by **Sonja Mavsar**

— **Please tell us about your role in the project. In what way were you involved?**

In 2016, the Slovenian Ministry of Education, Science and Sport expressed interest in being part of the EDU-LAB project as an associated strategic partner. The main purpose was to offer all possible support and assistance to the Slovenian full members of the project (University of Maribor and Regional Development Agency of Northern Primorska Ltd. Nova) from a policy perspective. The Ministry actively participated in several thematic workshops and contributed to the country's overview to the key project outcome

actively participated in the mini-conference "EDU-LAB: A chance for young people", held in Zagreb in April 2018.

— **How do you see the long-term impact of EDU-LAB?**

EDU-LAB provided a possibility for mutual learning through examples of good practice and cooperation with project stakeholders from other countries. The long-term impact may be expected at the institutional or national level. The volume of that impact is related to the national education policy and the strength of the economic sector in each participating country.

tegic document *New Danubian Governance Model Policy Guide "How to Start – Implementing the New Danubian Governance Model"* which presents a framework and a solid foundation for further developments in the Danube Region. In addition, the platform of the project proved to be an excellent opportunity of good practices exchange.

— **How do you see the long-term impact of EDU-LAB?**

The Slovenian Ministry of Education, Science and Sport welcomes any project or initiative related to brain drain. As Slovenia is facing similar issues related to emigration of our

high skilled workforce, especially higher education graduates, as all the other partner countries of the EDU LAB project apart from Germany, any measures addressing "brain circulation" and/or "brain

gain" are carefully taken into consideration. Having gained knowledge and experience, further steps for joint efforts of our ministry, higher education institutions and the business sector will be taken.

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## Ministry of Human Capacities in Hungary

— **1. Please tell us about your role in the project. In what way were you involved?**

The Ministry of Human Capacities as an Associated Strategic Partner (ASP) of the John von Neumann University and the EDU-LAB project is interested in providing professional and political support to the project and wants to offer valuable input – especially with the dual training concept – for the development and competitiveness of the Danube Region. The Ministry coordinates the dual training programmes within the framework of the higher education strategy as well as promotes STEM tertiary and vocational education programmes within the support schemes of Human Resources Development Operational Programmes.

— **How do you see the long-term impact of EDU-LAB?**

Although Hungary is not one of the most affected countries regarding youth unemployment in the European Union or in the region, it still aims to create a better environment

and better professional chances for young people. Therefore, we believe that the implementation of practise-oriented study programmes (e.g. dual training programmes) is of utmost importance. The educational system needs to be adjusted not only to the major economical and societal needs but also has to enhance entrepreneurship competencies of professors and students while strengthening the labour market relevance of higher education. In the academic year of 2018/2019 we registered more than 2000 students who have chosen dual training programmes at one of the 24 tertiary education institutions providing this special training. The Hungarian institutions offer a wide range of dual study programmes not only in STEM fields but also in social work (BSc).



# New Danubian Governance Model

# Introduction

One of the gravest societal problems the Central and Eastern European and Southeastern European countries of the Danube Region face is the emigration of their skilled workforce to Western European countries. According to a July 2016 discussion note of the International Monetary Fund, the scale of emigration from the region since the fall of the Iron Curtain has been almost unparalleled in history. The EU-accession of these countries in 2004 and 2007 exacerbated this process. The people leaving their countries mostly for Germany, Italy, and Spain tend to be younger and better educated – the majority of them being skilled and highly skilled – than the general population both of the country of their origin and of their destination. Emigration thus significantly reduced the supply of skilled workforce and put more pressure on the already stretched social insurance systems of these countries by increasing the dependency ratio. The emigration of the skilled workforce is also among the main impediments before economic convergence between the EU-15 and new member states. Without skilled migration economic growth would have been significantly higher in the region. In the Central and Eastern European countries of the Danube Region the loss in cumulative GDP growth between 1995 and 2012 ratio varies from 7 percentage points in Slovenia to about 3 percentage points in Hungary. Whereas in Croatia, Romania and Bulgaria the lost potential growth output during

the same period amounted to approx. 14, 10, and 8 percentage points, respectively.

To remedy the adverse effects of skilled-workforce emigration the IMF among others recommends increasing the quality of the existing workforce. The reduction of skill mismatches, aligning education and vocational training with employers' needs would not only increase labour productivity but help reduce structural and youth unemployment, which are among the main drivers of emigration.

One of the priority areas of the European Union Strategy for the Danube Region (EUSDR) is the Priority Area 9 (PA9) People and Skills, which sets policy goals in education and training, labour market and marginalised communities. The PA9 directly contributes to EU 2020 targets in employment (75% employment rate), education (reduction of school dropout rates below 10%; at least 40% of 30-34 years-olds attaining tertiary or equivalent education), and poverty and social exclusion (at least 20 million fewer people in or at risk of social exclusion).

As a strategic project within the PA9 priority area, the EDU-LAB project, by developing through transnational and intersectoral cooperation the New Danubian Governance Model in the labour market relevance of higher education addresses PA9 key priorities and directly contributes to the EU 2020 target of increasing the

proportion of young adults with a completed tertiary education. The New Danubian Governance Model is also situated at the cross-road of the policy agendas of other EUSDR priority areas: it directly contributes to the development of knowledge society (PA7), it enhances the competitiveness of enterprises (PA8), and as it is based on the collaboration of policy makers, public administration, higher education institutions and businesses, it furthers institutional capacity building and cooperation (PA10).

The New Danubian Governance Model specifically addresses the macroregional problem of skilled-workforce emigration by offering practical solutions for making higher education more labour market relevant and praxis-oriented. Developed in an interregional co-operation the New Danubian Governance Model is both regional in its goals and means and at the same time tailored to specific local contexts. Furthermore, the multi-stakeholder nature of its development - being a joint effort of education ministries, higher education institutions, as well as employers and employers' organisations and chambers - the new governance model offers a road map of implementation for every key actor both on the levels politics, policies and projects.

The overall aim of the New Danubian Governance Model is to implement a practice oriented higher education model by linking the theoretical

learning outcomes of higher education to practical skills, thereby elevating the direct labour market relevance of tertiary education. It systematically links basic knowledge to problem-solving, expertise to systemic understanding, theory to practice, analogue to digital forms of learning, individual learning and independent work to cooperative learning and team work, personal cultural identity to intercultural understanding, and self-reflection to social interaction. To achieve these learning outcomes an active co-operation between policy makers and the higher education sector with business organisations on a policy level, and higher education institutions and local businesses on a project level is essential. Local firms and regional branches of business organisations are key partners as one of the main priorities of the New Danubian Governance Model is to help students and local businesses find each other. Countries in the Danube Region not only suffer from emigration but also from growing regional disparities. Firms apart from the capital regions and a few highly industrialised regions lack skilled labour force and young people lack perspectives so they emigrate or move to more developed regions. To implement these new professional or smart study programmes the governance model also recommends a change on the level of politics: the higher education acts should be amended in order to enable collaboration between higher education institutions and companies through

a combination of financial incentives and regulatory means (by setting the standards of practical competencies to be achieved).

# The New Danubian Governance Model

This description of the new Danubian governance model focuses on praxis oriented tertiary education in such a way that it does not exclude scientific education. The authors of these documents argue that the autonomy of the universities should not be misinterpreted in the way that universities are not able to introduce praxis-oriented study programmes. It is the autonomy of universities to choose whether they want to develop or enhance professional study programmes in addition to scientific study programmes.

Changing the mindset of universities means also changing the government system. Although financial resources are always an important issue, the change in the mindset is not a question of money but rather a question of political will.

The Danube region is in a transition process which makes changes easier to implement. In this document we offer an idea of a new Danubian governance model to achieve a labour market relevance of higher education. The study programmes in line with these suggestions are called professional study programmes or, in line with the smart specializations, also smart study programmes.

## **For policy makers**

- Identification of the situation
- Building of a legal framework
- Incentives for the collaboration between higher education institutions and businesses
- Setting the minimum standards

- Assistance in the development of study programmes
- Monitoring and quality assurance

## **For higher education institutions**

- Commitment
- Building academic capacity
- Developing professional/smart study programmes
- Accreditation
- Implementation
- Monitoring and quality assurance
- Sustainability of collaboration between higher education institutions and businesses

## **For businesses and business organisations**

- Commitment
- Building collaboration with higher education institutions
- Developing the professional/smart study programmes
- Accreditation
- Implementation
- Monitoring and quality assurance
- Sustainability of collaboration between higher education institutions and businesses

All of these steps are broken down to well-defined tasks and objectives. The three group of stakeholders need to cooperate within and across the three sectors in order to successfully implement the professional/smart study programmes. However, because of its practical nature, the policy guide also makes the furthering of local or lower scale projects possible between “coalitions of the willing”.

# Policy Guide “How to Start – Implementing the New Danubian Governance Model”

## C

### Development of the policy guide

The starting point for the development of the policy guide was the determination that the policy guide has to be an operative document that will address specific problems and will offer well-defined specific steps on how to solve them. In order to achieve the intended function of the document, it is essential, that it gives workable advice on the steps that need to be undertaken in order to achieve the labour market relevance of higher education and to give the best knowledge and opportunities to the students in the Danube region. First and foremost, the students have to be attracted to studying in the region which means that they trust in the quality of the study programmes. And secondly, after graduation, the region should be capable of offering competitive employment opportunities?

The policy guide was developed within the EDU-LAB work package 4, led by the University of Maribor (UM), as a result of a joint brainstorming and working process including the experts from the stakeholder groups of

- policy makers: representatives from ministries of higher education, science and technology, labor, human capacities, chambers of commerce and industry, Danube Rectors Conference, municipalities;

- higher education institutions: representatives of university leaderships (vice-rectors for quality and education), university professors, university administration staff, national examination centers, students;
- business: representatives from companies from the field of technology, logistics, communication, electronics, energy supply, automotive industry, finance, representatives from various industry associations, regional development agencies, etc.

Countries involved in the project included experts from all the three stakeholder groups by inviting them to actively participate in the two organized seminars and workshops and by including them in the discussions on the contents of the policy guide within their respective country. The development of the policy guide thus considered the problems from all the included Danubian countries and, moreover, the description of steps for solving them provided by those countries who have already addressed the identified problems in labour market relevance of higher education. The leading partner of the project (European Foundation of Education, Stuttgart, Germany) has a deep insight into the

## 3.1

dual system studies in Germany, while the leading partner of the work package 4 (University of Maribor, Maribor, Slovenia) has extensive experience in the implementation of professional study programmes at the bachelor level (approximately 50% of the students enrolled in the bachelor study programmes at University of Maribor are enrolled in the professional study programs).

The structure and the contents was developed through several seminars, workshops and meetings (Maribor: September 2017 and January 2018, Belgrade: November 2017, Bratislava: March 2018, Vratsa: April 2018, Kecskemet: June 2018), through additional web-conferences and e-mail discussions.

Prior to the seminar and workshop in Maribor in September 2017, where the first profound brainstorming on the policy guide was pursued, UM prepared lists of situations that might be applicable for the stakeholders from business, higher education institutions and policy makers. All the partners were encouraged to discuss the points with their stakeholders, so their first input was received already prior to the Maribor event and included in the working material prepared for the seminar and workshops.

The brainstorming on the policy guide at the Maribor meeting was achieved within three thematic workgroups:

1. Identification of the current state and definition of goals.
2. Structure and contents of the workable policy.
3. Steps from a chosen current state to a specific desired goal.

All the attendees were included in the first and the second thematic workgroups while project partners contributed to the third thematic workgroup. The attendees were from all three stakeholder groups (policy makers, higher education institutions, business) and the discussion groups (DG) were formed in the following way: three of them were “pure” (i.e. only policy makers, only higher education institutions, only business) and two of them were mixed. In such a way, we obtained specific views from experts from one type of a stakeholder group as well as combined views from the mixed groups. Indeed, the project goal was to have all three stakeholder groups to exchange their views, but as a start, it was very important to obtain specific views on the topic from specific stakeholders in order to be able to set further activities that would lead to the triple helix actions.

The first thematic discussions were on the drafts of the documents on the identification of the current state and definition of goals. The brainstorming on the identification of the current state and definition of goals was a starting point for the discussion on the structure of the workable policy guide. These discussions confirmed the goal already set prior to

the meeting: the policy guide has to be operative, which means that it has to give workable advice on the steps that need to be undertaken in order to achieve the labour market relevance of higher education. It should include the identification of the current state for each stakeholder group, identification of the goals for each stakeholder group and specific steps that have to be undertaken as a triple action of all the three stakeholder groups in order to achieve the defined goal in connection to different starting points. In such a way the policy guide would be useful for the whole region, namely the major goal is the same (labour market relevance of higher education), but the starting points differ significantly between the Danubian countries.

In the third thematic discussion, each discussion group addressed a different combination of a specific starting point (A) and desired goal (B), and drafted specific steps (actions) by considering all the stakeholders that have to be included in order to achieve the goal. The discussion groups studied the following situations:

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#### Example 1

- A No systematic collaboration between HEI and business.
- B Dual system study is implemented in some specific study fields.

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#### Example 2

- A Companies have no trained supervisors for students at internships.
- B Companies train their own supervisors for students at internships.

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#### Example 3

- A No interest in collaboration between HEI and business (on either side).
- B There is an ongoing collaboration between HEI and business at the study program level.

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#### Example 4

- A No information on how many young people leave the country to study and no policy to motivate their return; no following of young people careers after finishing secondary school.
- B1 Governmental structures follow the careers of young people with the best results at the end of the secondary education (after 18/19 ys of age).
- B2 Governmental structures have an information on how many young people went to study abroad and which studies they chose.

B3: Country has a policy how to motivate young people to return to the region after finishing the studies abroad.

We have thus decided to implement the bottom-up approach, that is, by starting with very specific situations and designing steps to achieve some very specific goals. Through such discussions a more general approach for achieving the labour market relevance of higher education was developed.

The leaders of each discussion group reported on the results of their discussions. All the suggestions were collected by the work package 4 leaders and used to prepare the draft of the document for further development at the next meeting. Some groups continued the discussion also via teleconferences after the meeting and sent the suggestions to the project partner leading the work package 4.

Based on the presentations and discussions at the Maribor meeting, the major goals of the New Danubian Governance Model were set (see the previous chapter) and presented at the meeting in Belgrade. These set basic points have not changed much even after the discussions at further meetings in Maribor, Vratsa and Kecskemet as the project partners and all the stakeholders agreed that they present the goals in a clear and concise way. It was decided that the New Danubian Governance model should be as short as possible, giving

only the desired goal situation, while all other points should be included in the policy guide on how to reach the final goals described by the New Danubian Governance Model.

During the Belgrade meeting the steps towards achieving the goals set by the New Danubian Governance Model were further discussed, based on the drafts prepared by the University of Maribor. This drafts already included all the outcomes of the Maribor meeting. Based on the drafts, the partners on the project and stakeholders were able to further clarify the steps in achieving the labour market relevance of higher education. It was decided that the document should also include a section on the things that each stakeholder group should be willing to do and accept in order to implement professional study programmes. It was also decided that the steps already taken by some Danubian countries in the direction of more professionally oriented study programmes, no matter how far from or close to the goals of the New Danubian Governance Model they are, should be collected and included in the appendix to the document. It was also decided that the leaders of the work package preparing the policy guide and work package preparing pilot activities should meet and discuss/check the applicability of the policy guide in the pilot activities. During this meeting (Bratislava, March 2018), the steps that should be taken by the higher education institution and business were joined from the step describing

the preparation of the professional study programs forward.

At the meeting in Maribor in January 2018, the partners and stakeholders obtained the first version joining all the parts of the workable policy. During the workshops the partners and stakeholders discussed

- the contents of the New Danubian Governance model; as a result, one point (the last one) was added to the model,
- the contents of the tables identifying the current state; it was decided that these questionnaires should also be prepared as web questionnaires, which would enable to fill in the answers on-line and the results to be printed out,

— the contents of the “Things you should be willing to do”,

— the steps to be taken by policy makers, higher education institutions and business.

As a lasting effect the formation of the national academies of professional study programs was proposed and the draft of the contract was suggested to be added in the appendix of the document.

Finally, at the Kecskemet meeting it was suggested that links to the e-learning courses, developed within the project are also given in the document. In addition, a prezi presentation was prepared, which enables an easier access to the working policy chapters and includes links to all the supporting material.



### Target groups

The New Danubian Governance Model and the Policy Guide is a tool that can be used by any stakeholder (policy makers, higher education institution leaderships, and business) that finds the need to stimulate changes in the higher education system towards higher labour market relevance of higher education study programmes.

### Structure of the policy guide

The policy guide consists of three sections:

1. Identify your current state  
This section also enables the setting of goals.
2. Things you should be willing to accept/undertake to implement professional/smart study programmes  
This section addresses the prerequisites for the successful implementation of the labour market relevance of higher education; in short: policy makers have to give high assistance to change, higher education institutions should change their mind-set and business should accept a new partnership role.

### 3. Steps

For each stakeholder group the actions necessary to reach the goal are divided into 6 to 7 major steps.

Each section is divided into three parts: policy makers, higher education institutions and the business sector. The actions and steps of all three stakeholders are essentially interconnected. However, there are specifics for each stakeholder group and that is why it was decided to address each group separately. The connection to other stakeholder groups is obvious from the actions/steps suggested for each group. Especially the prezi version of the document makes the cross-reading between the stakeholder groups very easy.

This policy guide enables you:

- to identify your current state; descriptions of possible situations are given in such a way that you can already identify your goals during this process;
- to set your major and/or minor goals as there are several possibilities to achieve sustainable and long-lasting collaboration between universities and companies; and

- to check the steps that other countries have already performed to achieve a desired goal; multiple possibilities are given for you to choose the most appropriate one according to the legislation in your country or to check the steps that other countries have taken in order to change legislation.

This policy guide addresses the most frequently asked questions:

- Who (a university or companies) should initiate the collaboration?
- Are governmental structures required as catalysts?
- How long does it take to implement the changes?
- Are there downsides of internships and how to diminish them?
- How to make companies excited about collaboration?
- How to make universities interested in praxis-oriented studies?
- How to make praxis-oriented studies accessible for SMEs?
- What competencies and knowledge should supervisors in companies have and who should educate them?

### Supporting material

The policy guide was prepared based on the experience of the partners involved in the project. Every suggested activity has already been performed successfully by at least one of the partners. In order to avoid scepticism on whether the goal of the labour market relevance of

higher education study programs is achievable or not, we have collected all the steps already taken by the project partner countries (Appendix 5). The timeline of changes is included to show that enforcing the changes can take decades, because the most difficult thing is to change the mind-set. However, the examples of a successful implementation prove that it can be done.

The questions that occurred frequently during the discussions at seminars and workshops are collected in Appendix 4.

To make it easier to identify the current state and goals we have developed a web application (a questionnaire), which enables identification of the given situations as something that already exists and is already systematically enforced or as only an example of best practice, something that you would like to achieve (a goal) or something that is not applicable to you. The web application enables you to print out the situations according to the selected answer. We suggest using these questionnaires when starting the activities and then periodically to check how the situations identified as goals are moving towards the part identified as a current state.

Within the project several e-learning courses were also developed and can help in obtaining ideas on how to reach the goal. The links to the e-learning courses are included in appendix 7.

## Where to start?

Anywhere! The topics are arranged linearly, but our mind does not work this way. Also, the activities required to reach the final goal do not necessarily follow each other as suggested by the policy guide. In several cases the order can be changed, several activities can run in parallel. However, to reach the final goal, most of them will have to be carried out at some point.

A suggestion: start at the activity that you find the easiest and most straightforward. The important thing it is to start and keep in mind that it often suffices to have only one enthusiast in each stakeholder group to make a change. Are you one of them?

## Is it workable?

Yes, it is! The suggested activities are based on the activities already carried out by the project partner John von Neumann University, who has already implemented those changes. Furthermore, the recommended steps were already used in the pilot activities within the project which lead to a successful implementation of:

— the first professional study program in Slovakia. In August 2018 the Slovak Accreditation Commission accredited a professional bachelor programme at the Slovak University of Technology in Bratislava, becoming

the first accredited professionally oriented study programme in Slovakia approved by the commission according to the new criteria. The experts involved in the development of the accreditation criteria were involved in the development of the New Danubian Governance Model and followed its recommendations. The new study program was designed according to these recommendations as well. Thus, the professionally oriented study programme offered by the Faculty of Mechanical Engineering, is structured in four years of study and corresponds to the level of other bachelor programmes of the university, however, with a stronger focus on practical training, combining theoretical studies with mandatory practical training. In the first and second year the students are provided courses laying a theoretical foundation on which they can later build the practical skills. In the third year they are employed in one of the 8 transnational partner companies based in different regions of Slovakia. The fact that partner companies are based in different regions of Slovakia plays an important role in mitigating brain drain from regions as well as in encouraging students to stay in their homeland after their studies. The curriculum of the fourth year was modified in collaboration with the partner companies in order to meet their actual requirements. In order to cover the theoretical background required by the company the students are employed, a wide range of subjects to choose from are

offered. The students have the opportunity to receive company-sponsored scholarships each year. The total amount of provided financial means vary, depending on individuals' evaluation.

— the implementation of the professional internship at the master study programs at the University of Maribor (the matching platform between the students and companies was established through the EDU-LAB project, further activities in the next two years will be financed through the development funds provided by the Ministry of Higher Education, Science and Sports),

— a legislative change and the accreditation of a professional study program is being prepared in Serbia

— the National Academy for Professional Education was funded in Bulgaria as a coordinating body of activities aiming better lining of education to employment and lobbying for the legislative change that would be needed. The members are three EDU-LAB project partners, – the Technical University of Sofia, the Bulgarian Industry Association-Union of the Bulgarian business and the European Foundation for Education – joined by the German-Bulgarian Chamber of Industry and Commerce, the Industrial Cluster Srednogie.

**Policy makers**

Please find the checklist on our website to identify your current state regarding:

- the conditions that enable several possible systemic collaborations between the HEI and business (legislation, incentives, frameworks, etc.);
- the knowledge of what young people want in relation to what is offered to them (in scope of studies and future employment possibilities); and
- the conditions that can be met through collaboration among several relevant ministries.

The situations in the tables below are combined into the following sections:

1. High support to changes,
2. Incentives, and
3. Higher education laws and quality assurance.

The second column in the tables below is empty for you to record your specific answers. The described situations can give you an idea of what type of activities are possible, so you can identify the statement in the empty column as:

- something that already exists (current state - CS),
- something that you would like to achieve (goal -G), or
- something that is not applicable (NA) to you.

Some questions might require simple YES/NO answers, but again, they can show you the way of how to enforce a change.

There are empty lines at the end of each topic where you can add your own ideas.

When answering, think also about the system level of the situation:

- is this systematically arranged (SA), or
- is it just a matter of specific situations (best practice example – BPE).

**Higher education institutions**

Please find the checklist on our website to identify your current state regarding:

- conditions required within the HEI to introduce study programmes in collaboration with business;
- the existing obstacles to reform study programmes or introduce new study programmes;
- systemic possibilities for collaboration between the HEI and business within study programmes; and
- flexibility or rigidity of the HEI system.

The situations in the tables below are combined into the following sections:

1. Reasons for collaboration between the HEI and business,
2. Possibility for collaboration,
3. Flexibility of the curriculum,
4. Incentives for collaboration between HEIs and business, and
5. Quality assurance.

The second column in the table below is empty for you to record

your specific answers. The described situations can give you an idea of what type of activities are possible, so you can identify the statement in the empty column as:

- something that already exists (current state – CS),
- something that you would like to achieve (goal – G), or
- something that is not applicable (NA) to you.

Some questions might require simple YES/NO answers, but again, they can show you the way of how to enforce a change.

When answering, think also about the system level of the situation:

- is this systematically arranged (SA), or
- is it just a matter of specific situations (best practice example – BPE).

There are empty lines at the end of each topic where you can add your own ideas.

## Business

Please find the checklist on our website to identify your current state regarding:

- the collaboration with HEIs within study programmes;
- the systemic possibilities for collaboration between HEIs and the business within study programmes; and
- conditions required to enable collaboration with HEIs.

The situations in the tables below are combined into the following sections:

1. Awareness about the competencies and knowledge of graduates from different study programmes;
2. Missing knowledge/competencies of graduates;
3. Apart from the in-depth knowledge in the field of study, which competencies/skills are the most important for your company?;
4. Types of collaboration with higher education institutions;
5. Organization of the internship; and
6. Incentives for collaboration between HEIs and the business.

The second column in the tables below is empty for you to record your specific answers. The described situations can give you an idea of what type of activities are

possible, so you can identify the statement in the empty column as:  
→ something that already exists (current state – CS),  
→ something that you would like to achieve (goal – G), or  
→ something that is not applicable (NA) to you.

Some questions might require simple YES/NO answers, but again, they can show you the way of how to enforce a change.

When answering, think also about the system level of the situation:  
→ is this systematically arranged (SA), or  
→ is it just a matter of specific situations (best practice example – BPE).

There are empty lines at the end of each topic where you can add your own ideas.

## C

## 3.4

### Things you should be willing to accept/undertake to implement professional/smart study programmes

#### Policy makers

In order to implement professional/smart study programmes you are required to give **HIGH ASSISTANCE TO CHANGE!**

- Develop a long-term vision (focus both on national and regional needs).
- Identify change agents; who can change and motivate:
  - o financing principles,
  - o allocation according to economic needs, and
  - o legal changes.
- Adapt the HEI law to support professional/smart study programmes.
- Encourage collaboration among the Ministry of Commerce/Economy, Ministry of Labour, Chamber of Commerce, Ministry of Higher Education, and regional policy makers.
- Build the framework of incentives:
  - o tax law,
  - o financing of HEIs, and
  - o incentives at the level of local governments.
- Invest in the training of supervisors (allocate stable funds).
- Invest in infrastructure.
- Adapt the accreditation procedures to include business.
- Create a quality assurance body (a council for professional/smart study programmes).
- Develop national/regional open databases with information on companies and the labour market.

## Higher education institution

In order to implement professional/smart study programmes you are required to **CHANGE YOUR MINDSET** and be willing to:

- Commit to collaboration with business on a strategic and operational level and allocate the resources:
  - o develop funding models,
  - o allocate staff to develop the system,
  - o create openness to cooperation and innovation, and
  - o create openness to partnership with business.
- Integrate practical work as a compulsory part of the curriculum.
- Be open to collaboration with business in changing/creating new study programmes.
- Prepare new study programmes and implement them.
- Be open to participation in innovative R&D.
- Change the ratio between theory and practice within study programmes and:
  - o accept new methods of teaching (new mindset of professors),
  - o include practical/project work as a part of study programmes (including examples from the business sector),
  - o motivate a common use of infrastructure, and
  - o improve digital and soft skills of the teaching staff and students.
- Involve students as partners in all stages of implementing changes.

## Business

In order to implement professional/smart study programmes you should **ACCEPT A NEW PARTNERSHIP ROLE** and be willing to:

- Commit to collaboration with HEIs on a strategic and operational level.
- Strategically commit to give personnel and financial resources.
- Assign employees to train for the role of supervisors.
- Invest in the training of supervisors.
- Invest in remuneration for students.
- Collaborate with HEIs in developing the curriculum.
- Take the responsibility for the implementation of a part of the curriculum.
- Collaborate with HEIs in the evaluation of study programmes, making changes, adaptation, etc.
- Establish knowledge transfer between the company and HEIs (collaboration among supervisors and professors).
- Cooperate with other companies.
- Sign long-term agreements with HEIs.
- Be part of the selection procedure of students.
- Have patience: HEIs and policy makers operate on a different timescale than businesses.

## Policy makers

1

**Identify the situation**

Perform this step to the available extent (by no means should you use the lack of some data as an excuse to do nothing!)

- Obtain the data and analyse careers of young people after secondary education (after 18-19 years of age).
- Obtain the data and analyse careers of young people after HEI graduation.
- Obtain the data and analyse the number of young people that went to study abroad and the studies they chose.
- Perform a research to find the amount of brain drain and reasons for it.
- Carry out a research to find out how the environment/society accepts the idea of professional/smart study programmes.
- Open a public discussion and present best practices.
- Carry out a research to make predictions on future needs of the labour market (national and regional).

2

**Build a legal framework**

- Develop a long-term vision on the labour market relevance of higher education.
- Develop a long-term regional strategy of educating for business needs.
- Make necessary changes in HE acts to establish a flexible framework of study programmes. The system should
  - o be pragmatically oriented and practical,
  - o define responsibility, and
  - o define the status of students doing internship.
- Make a legal framework for incentives to support collaboration between HEIs and business.
- Make necessary changes in legislation referring to the health insurance, safety guidelines, employment procedure, etc. for students doing internships and companies accepting the students (a labour code, law on income taxes, law on health insurance, etc.).

3

**Give incentives to stimulate/start collaboration between HEIs and business**

- Invest in infrastructure (research centres, laboratories, etc.).
- Establish incubators of collaboration.
- Finance career centres at HEIs.
- Support inclusion of business experts in study programmes (as lecturers within specific courses, as (co)supervisors for final theses and internships, etc.).
- Finance R&D projects between business and HEIs including both HEI teaching staff and students.
- Establish a system of performance-based financing for universities.
- Give scholarships for students involved in professionally oriented study programmes.
- Establish a system for stimulating unemployed people to be integrated/reintegrated within professionally oriented study programmes (career counselling, etc.).

4

**Set the minimum standards for professional/smart study programmes**

In setting the standards, refer to

- the level of competencies and learning outcomes of the study programmes;
- a contractual matrix among all stakeholders (HEIs and companies, HEIs and students, companies and students, and HEIs and authorities);
- the critical mass regarding the number of companies, number of study places, number of supervisors in companies, number of teaching staff at HEIs collaborating with companies;
- the threshold requirements regarding infrastructure and financial resources;
- the structure of study programmes: how many ECTS at the HEI, how many at the company, horizontal and vertical connection of courses, etc.;
- the requirements for trained supervisors;
- the requirements for an on-going collaboration between supervisors in companies and HEIs;
- the maximum length of the accreditation procedure:
  - o should be short in order not to discourage business, and
  - o gradually transfer the accreditation to HEIs and only perform regular quality assurance procedures.

### Monitoring and quality assurance

- Establish a council for professional/smart education (the role can be assigned to an external accreditation council, if you decide to have it) and define o quality assurance procedures, and o the supervision and evaluation of implementation (visit companies and HEIs).
- Establish a system for monitoring the employability of graduates within their field of study in order to plan the study fields that require or are appropriate for the professional/smart study programmes.

6

5

### Assistance to the development of study programmes

- Help in negotiations between business and HEIs.
- SME: they will require incentives – find the money, set the rules, etc.
- Develop national/regional open databases with information on companies and labour market.

## Higher education institutions

1

### Commitment

- Define cooperation between the HEI and business as a strategic goal at the management level.
- Organize meetings, events, conferences, focus groups, and workshops in collaboration with universities, business, chambers of commerce, and business associations in order to get feedback from the labour market, to identify the way of cooperation and common interests, and to promote best practices.
- Create awareness about the need for partnership and cooperation among university professors and students.
- Improve the capacity of the HEI to implement changes (changes in management).
- Allocate financial funds to implement changes.

## Business

1

### Commitment

- Commit on a strategical level (collaboration with HEIs, also/ especially through professional/smart study programmes is „the right thing“).
- Build an implementation team, strategic and operational, and o identify frontrunners, and o propose to managers a clearly defined roadmap:
  - human resources are needed (internal experts required for teaching students are taken from their original role), and
  - financial resources are needed.

## Higher education institutions

### Build academic capacity

- Build the academic capacity of the HEI to collaborate with business by
  - o establishing career centres,
  - o inviting guest speakers from business to lecture,
  - o inviting former graduates to present their experiences and courses they took,
  - o offering the teaching staff time to spend at the associated companies,
  - o jointly developing case studies,
  - o setting research themes for students that are influenced by the research teams of companies,
  - o organizing business competitions for students,
  - o conducting applied research projects that are contracted between universities and companies,

2

- o designing training programmes (LLL) for employees of companies,
- o promoting scholarships for students,
- o offering workshops run by people from business/external experts,
- o taking advantage of the European mobility programmes for the employment of students,
- o communicating with alumni, and
- o enabling voluntary internship within study programmes.
- Form an advisory board for collaboration with business.
- Form an administrative office, responsible for developing the above types of partnerships (an example: University of Rochester, USA – 270 people hired and responsible to connect with alumni and business in order to raise money for the university).

## Business

2

### Build the connection/ collaboration with HEIs

- o Whom to contact?
- o approach the HEI or a specific department directly, or/and
- o approach a career centre at the HEI, or/and
- o approach a vice-rector or vice-dean for education, research or collaboration with business, or/and

- o approach laboratories of applicative research.
- o Build connections with the HEI by offering
  - o to give lectures as guest speakers in courses,
  - o internships,
  - o joint development of case studies,
  - o research themes for students that are influenced by your research team,
  - o a business competition for students,
  - o scholarships for students,
  - o to collaborate in applied research projects

## Higher education institutions / Business

### Development of professional/smart study programmes

- Define possible study fields for professional/smart study programmes.
- Identify companies available in the region.
- Approach business associations, clusters and companies (employers) in general.
- Form a joint working group (business – HEI) to develop the curriculum in line with the standards set for professional/smart study programmes (see the suggestions for step 4 for policy makers).
- Whom to contact?
  - o If there are no professional/smart study programmes yet: approach the chamber of commerce or employers' organizations; they should approach either the ministry of higher education or HEIs directly.
  - o If professional/smart study programmes already exist: contact the HEI directly.
- Explore the options on additional life-long learning programmes with the mindset of professional/smart study programmes, based on actual needs of local/national business.
- Decide on the content:
  - o define the goals of the programmes;
  - o define the skills, competencies and knowledge of the graduates (professional/technical knowledge, social competencies, language skills, transferable skills, IT-skills, project management skills, certified foreign language knowledge on B2 level at least, etc.);
  - o define topics covered by the HEI and topics covered by a company (also based on the information on which equipment the company is willing to share for the study process); and
  - o define the targeted values on practical vs. academic knowledge (time and content).
- Decide on the structure:
  - o define the number of months per year that students should spend in companies;
  - o define ECTS allocated for lectures/tutorials at the HEI and ECTS for internship;
  - o define the interchange of time spent at the HEI and in a company (interchange within each week, e.g. 3 days at the HEI and 2 in the company, or interchange within months, e.g. 3 months at the HEI, one month in the company, etc.);
  - o decide on whether students shall have internship in more than one company; and
  - o define the courses that are horizontally and vertically correlated.
- Decide on the (new) methods of teaching.
  - o Prepare trainings for HE teaching staff within the business sector (associated companies) to give them the necessary skills required for the professionally oriented study programmes.
- Agree on the entrance conditions for students and their selection:
  - o The system should be transparent.

3



3

- Define the prior education that students should have to be eligible to apply.
- o Define the entrance exams (theoretical, practical, psychological, etc.)
- o Define the responsibility for performing the selection procedure.
  - Each party (academia and business) should be able to reject the applicant.
- Decide on the requirements and training of tutors/supervisors in the company.
  - o What knowledge and skills should supervisors have? For example:
    - Teaching/pedagogical skills: not having pedagogical skills represents the risk of not transferring the knowledge, which results in poor performance of students.
    - Digital skills: not just the regular use of computers and software, but using technology to transfer knowledge and build capacity of students.
    - Expert skills.
    - Ability to translate learning goals into practical tasks and exercises.
    - Ability to work with academia.
  - o Who should educate the tutors/supervisors? For example:
    - chambers of commerce;
    - training centres;
    - associations related to training; or
    - the HEI: not advised, because HEIs are not flexible enough and practically oriented, they get too theoretical and they do not know about processes in business.
  - o Content of training, for example:
    - development of social skills (didactics, pedagogy, psychology, communication, etc.);
    - building the ability to translate learning goals in practical tasks and exercises (based on examples for specific study fields); and
    - the development of digital skills.
  - o Education of tutors/supervisors should end with a formal license/certificate.
  - o Keep a register of licensed tutors/supervisors.
- Define responsibilities and quality assurance procedures.
- Prepare and sign long-term agreements between the HEI and companies, which include the above-raised points discussed and agreed upon within the joint working group.
- Prepare a template for students – a company agreement in which you define at least:
  - o responsibilities of the company,
  - o responsibilities of the student,
  - o if the students are required to stay in the company after graduation (we strongly advise against such a requirement),
  - o remuneration for students at internship, and
  - o what happens if students do not perform well enough.

5

### Implementation

- Prior to the release of the application call:
- Select the companies involved (quality assurance check).
  - Define the number of study places:
    - o How many new students per year is each company willing to accept?
      - The decision should also be based on how many supervisors can company train and allocate.
    - o Are companies interested in „sharing“ students with other companies (i.e. they learn in other companies as well)
    - o Suggestion: the number of study places is lower than the number of possible internship places.
- After the closure of the application call:
- Select the students:
    - o Check general requirements (are applicants eligible to apply).
    - o Perform the entrance exams in the HEI and in companies (if such entrance exams are defined within the study programme).
    - o Match the selected students and companies (each party has a right to reject).
    - o Sign the student – company study agreements.

4

### Accreditation

Approval of a new or adapted study programme by the body defined in the regional/national higher education act.

### Monitoring and quality assurance

- Define a study programme council (it can also be a council at the faculty or university level) to monitor the implementation of the contract between the HEI and business in order to avoid any deviation.
- Plan regular meetings between HEI teaching staff and supervisors from business to follow up on the student progress and to resolve the issues raised.
- Perform regular (self)evaluation of the study programme (including a semester-based student-satisfaction survey) and propose changes in the curriculum, develop/change teaching methods, develop new study cases, update the syllabus of the study courses, evaluate the performance of students, lecturers and supervisors, adapt the selection procedure, etc.
- Follow up on the percentage of graduates that were employed by the companies involved in the study programme.
- Regularly check the satisfaction of graduates with the knowledge and skills obtained within the study programme, focusing both on the part performed by the HEI and the part performed by companies.

6

7

### Sustainability of collaboration between the HEI and business

- Form a national/regional board, for example the National Academy of Professional Education, which will combine the following activities in a synergetic way:
  - o professional/smart study programmes;
  - o qualification programmes for trainers in companies for apprenticeships and practical parts of dual studies;
  - o further education for teachers in professionally oriented schools, in particular technical high schools;
  - o further formation programmes such as start-up training, entrepreneurship, design thinking, and deep learning; and
  - o the organization of know-how transfer between universities and companies in the fields of study programmes, science and research.

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## **Guidelines for a successful implementation of professionally oriented study programmes in companies**

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**1. Practical placements need to be planned carefully. In the course of their studies, students acquire a wide spectrum of necessary professional skills by being charged with versatile tasks.**

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**2. The companies receive information in due time regarding the time and length of the internship/deployment, the level of knowledge of the student, and the qualitative requirements.**

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**3. The companies ensure that qualified mentors and enough time is dedicated to the guidance of the students.**

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**4. Tasks and project goals are clearly communicated to the students. Students are held accountable for carrying out the tasks independently.**

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**5. Students are charged with projects and tasks that contribute to their personal and professional development and bring added value for internal and external customers.**

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**6. The students get insight in business processes through their work. The conferred responsibilities leave room for personal initiative, individual approaches and creativity. Growing complexity and responsibility of tasks (practice projects) offer students the chance to acquire professional competency and increase their employability.**

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**7. Students are integrated in teams and experience socialization within the company. Besides acquiring professional and methodical competencies, they get familiar with standards needed to carry out their profession and the rules for successful communication and cooperation.**

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**8. If possible, students spend an internship phase abroad. Ideally, there they receive tasks and responsibilities that complement the theoretical and practical knowledge gained in their home countries. Special attention must be paid to acquiring language skills and intercultural competencies.**

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**9. Students have a dedicated mentor/coach for the entire length of their studies. Students receive regular feedback regarding their professional and personal development.**

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**10. Students receive guidance from their mentor/coach during their last academic year as well and are assisted in finding an appropriate topic for their bachelor thesis. Furthermore, the mentor/coach stays available after the final exam to advice the students while they are looking for their first employment. His knowledge of the professional environment and of the personality and qualifications of the student contributes to a successful career start.**

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**11. If the company cannot fulfil all the demands for the necessary professional skills, the partners organize exchange programmes with other companies, and if necessary, with other professional centres for training.**

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**12. As the students are selected by the company and are actively working in the company, the company pays a remuneration to support the living costs and the tuition fees of the students.**

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## Frequently asked questions

### **Who (university or companies) should be an initiator for the collaboration?**

Do not wait for each other. Whoever has the interest should initiate communication with the other party. Usually, business will be the initiator because they have an interest. However, the initiation idea accompanied by incentives could come from policy makers as well, because they are the ones that have to enable the legal framework for collaboration.

### **Are governmental structures required as catalysts?**

Governmental structures are required as catalyst for all the systemic types of collaboration because these require changes in the legal system. Nevertheless, there are several types of collaboration between business and academia that require only the interest and goodwill of both sides.

### **How long does it take to implement changes?**

It depends on the interest of all the actors involved in the triple helix (policy makers, HEIs, and business). From the first gems of collaboration between HEIs and business to the implementation of the professional/smart study programmes it can take several decades (see the steps taken

in Germany in the next section). This should not discourage you. The establishment of collaboration is a long process. Usually, it takes the longest to change the legal framework; however, the legal framework itself cannot make the collaboration happen. Above all, the collaboration between HEIs and business requires a change in the mindset. Policy makers are crucial in this respect, because collaborations between HEIs and business built through carefully planned investments of money incentives can later be advertised as examples of good practice, which, in turn, stimulate further collaborations.

### **Are there downsides of internship and how to diminish them?**

The major downside of the internship comes from students not being properly supervised, which in turn presents the risk of not transferring the knowledge to students. Thus, the most important thing is to educate the supervisors. For ideas on what knowledge and skills supervisors should have, who should educate the supervisors and the contents of the training for supervisors, see step 3 under HEIs and business.

### **How to make companies excited about collaboration?**

In general, companies are interested in collaboration if they see the opportunity to obtain the best graduates and/or diminish the time required to introduce new employees to work, but they will require incentives (especially small companies) for additional costs that collaboration brings about (remuneration for students, cost of supervisors, training of supervisors, etc.).

### **How to make universities interested in professional/smart study programmes and what can be done if universities are not willing to undertake professional study programmes?**

In several cases, universities feel that having also professional study programmes is a step back, because they consider themselves as purely academic institutions. They might also be afraid of losing their master and doctoral studies and being reduced to vocational schools with significantly lower budget and without the possibility to apply for scientific-research projects.

Even when universities are willing to extend their mission to the professional study programmes, active collaboration between universities and companies might make universities face the tension between the scientific education and praxis-oriented education, and between the scientific freedom and research performed by contracts for companies. Policy makers can release this tension by stimulating both the basic

research (scientific freedom) and the research performed by contracts for companies. The common mistake is that policy makers (sometimes also HEIs) wrongly assume/require that this dualism is achieved within each HEI researcher/professor. This is not feasible; instead, it should be possible and feasible to have both types of researchers. The combination of basic and applicative research might have a positive effect on both.

If universities, which have a wider mission, exercise their autonomy by rejecting the collaboration with business, HE acts should enable establishment of higher education institutions to collaborate with business.

### **How to make professional/smart study programmes accessible to SMEs?**

Policy makers should develop a framework of incentives for SMEs to be able to collaborate in professional/smart study programmes.

### **What competencies and knowledge should supervisors in companies have and who should educate them?**

For ideas on what knowledge and skills supervisors should have, who should educate the supervisors and the contents of the training for supervisors, see step 3 under HEIs and business.

# Learning Tools



Creating professionally oriented curricula in higher education aims to establish a direct link between university graduates and labour market needs which will result in providing well-trained people and competitive advantage on the macro level. Danube Region countries have different approaches in this area: Germany, Austria and Hungary already have universities of applied sciences, while other countries are implementing various activities in order to improve the situation. Some of these activities are: creating national agencies responsible for professional education and training, including lifelong learning principles, obligatory internships for university students, various programs of career development centres, etc.

The analysis of the status quo, performed by the EDU-LAB partnership,

showed that in most partner countries in the Danube Region there is a need to introduce more professionally oriented study programmes and to improve the regulatory framework. This process is based on the triple helix model which assumes that academia, policy makers and businesses are dynamically interconnected and actively participate in innovation and knowledge creation and that all three stakeholders benefit from this cooperation. This is one of the most challenging tasks of the developing countries, and trainings provided by higher education institutions to companies are an integral part of this process.

The EDU-LAB partnership developed tools for the stakeholders in the Danube Region which offer an insight into different aspects of improving the labour market relevance

of higher. The courses provide an overview of relevant regulations and offer practical guidance support for stakeholders. The stakeholders belonging to state/public administration as well as those representing higher education institutions and the business sector have a crucial role in these processes. By exchanging best practices, project partners and stakeholders will learn from each other and improve the governance models concerning the linkage of the educational system to the labour market needs.

The goals of the EDU-LAB e-learning courses (ELCs) are to raise a greater awareness of the possible benefits of linking education to employment in the Danube Region and to offer an overview of the steps to take in order to achieve this. The e-learning courses are designed to support stakeholders interested in introducing more professionally oriented study programs in order to better respond to the current and future needs of employers and who need assistance and capacity development to be able to do this.

The materials presented in the ELCs show how the results and best practices of the individual countries can be transferred to other countries facing similar challenges and following similar goals. The courses offer not only theoretical knowledge but a practical guide showing how to transfer the already tested knowledge as well.

A variety of best practices for linking education to employment in the Danube Region are presented as well. By pointing out successful alignments between higher educational offers and the needs of the business sector, stakeholders will be encouraged to look for their own solutions and find out what legislative and institutional bottlenecks they need to overcome at national and regional levels.

The following e-learning courses were developed:

- Encouraging the further development of Higher Education Acts
- Fostering the creation of more professionally oriented study programmes
- Enhancing professional training (train the trainers) in companies
- Strengthening regional economic development

The courses were designed through transnational cooperation, integrating contributions from partners from eight Danube Region countries. The responsible project partner for this activity was Institute Mihajlo Pupin (IMP). The ELCs are placed on the IMP platform (<http://jpo.imp.bg.ac.rs/edu-lab/>) and can be accessed for free.

Each e-learning course is divided into themes/modules and sessions. The materials are in the form of PowerPoint presentations, videos, pdf document and concept maps.

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Course name

**Encouraging the further development of Higher Education Acts**

Themes/Modules

- T 1 Existing governance models
- T 2 Adoption and Amendment of Higher Education Acts
- T 3 Admission to higher education

Partners involved

University of Maribor, Slovenia / John von Neumann University, Hungary / Mechanical Engineering Faculty (University of Sarajevo), Bosnia and Herzegovina

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Course name

**Fostering the creation of more professionally oriented study programmes**

Themes/Modules

- M 1 Why change higher education studies?
- M 2 How to bring practical experience into higher education studies?
- M 3 Examples of existing best practices?
- M 4 What's possible – one example from the automotive industry in Slovakia
- M 5 Where to start? step-by-step how to create more professionally oriented study programme  
Best practices

Partners involved

Lucian Blaga University of Sibiu, Romania / Technical University of Košice, Slovakia / German-Slovak Chamber of Industry and Commerce, Slovakia / Automotive Industry Association of the Slovak Republic

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Course name

**Enhancing professional training (train the trainers) in companies  
PART 1: Training of trainers competency model**

Themes/Modules

- M 1 Competencies and competency models for trainers of 21st Century
- M 2 Training methodology. Knowledge management. Needs analysis
- M 3 Technologies and web 2.0 for training. Training 3.0 for trainers.
- M 4 Pedagogy 2.0 and e-portfolio. Feedback
- M 5 Training delivery, assessment and efficiency

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**PART 2: Trainers' e-skills, management and change management skills**

Themes/Modules

- M 1 e-Skills and digital event management
- M 2 Communication skills and social media
- M 3 Time management skills
- M 4 Change management skills
- M 5 Management and marketing for training

Partners involved

Technical University of Sofia, Bulgaria / Institute for the Study of Societies and Knowledge, Bulgarian Academy of Sciences

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Course name

**Strengthening regional economic development**

Themes/Modules

- T 1 EU, regional and national context: challenges, policy context, recommendations
- T 2 Business environment
- T 3 Higher education institutions as centres of regional development and innovation
- T 4 RIS3/Smart specialization

Partners involved

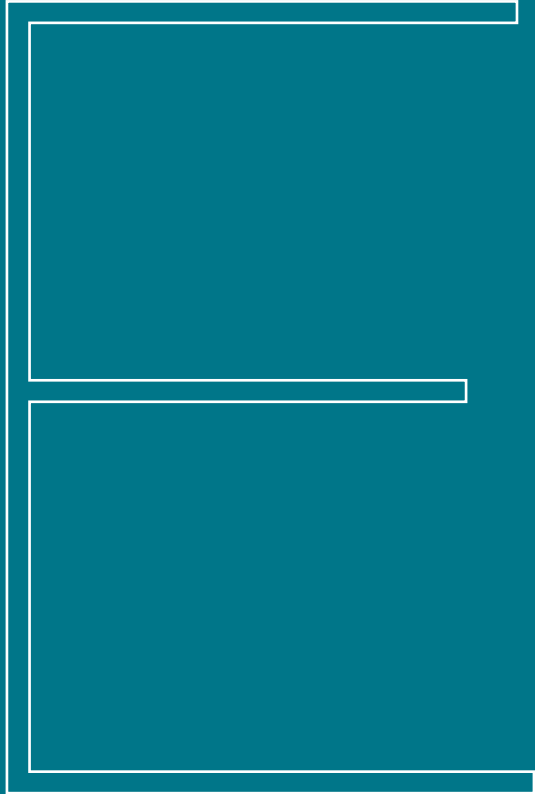
European Foundation for Education, Germany / Institute Mihajlo Pupin, Serbia / Chamber of Commerce and Industry of Serbia

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Structure of the courses and partners involved in their development

All e-learning courses include an evaluation survey to collect the feedback of the users. This feedback is used to improve the content by providing additional relevant information and examples of good practice.

These four e-learning courses are addressing all three relevant stakeholder groups of the EDU-LAB project: educational institutions, businesses and national public authorities. The e-learning courses enable a joint trans-national learning process which results in improving institutional capacity and brings an added value for the users.



# Pilot activities and lessons learned



# Compilation of Lessons Learned from THE EDU-LAB Pilot activities

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## Introduction

by Barbara Plachá, German-Slovak Chamber of Industry and Commerce, coordinator of the pilot activities

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### EDU-LAB pilot activities

In order to enhance a closer linkage between higher education and labour market needs in the countries of the Danube Region, pilot activities took place between October 2017 and April 2019. The goal of the pilot activities was to test the feasibility of the policy recommendations and tools developed in the project phases. These, such as the New Danubian Governance Model and the e-Learning tools are presented in detail in the present publication.

For the pilot activities, nine project partners from three pilot countries were chosen:

- Bulgaria: the Bulgarian Industrial Association (BIA), Technical University of Sofia (TU Sofia) and the Municipality of Vratsa,
- Serbia: Chamber of Commerce and Industry in Serbia (CCIS), Institute Mihajlo Pupin (IMP)
- Slovakia: the German-Slovak Chamber of Industry and Commerce (DSIHK), Technical University of Kosice (TUKE) and the Automotive Industry Association of the Slovak Republic (ZAP SR)

Supported by the work package leader – the German-Slovak Chamber of Industry and Commerce – and EDU-LAB Lead Partner European Foundation for Education, the pilot countries followed the below steps:

- Establishment of a platform – Coordination point – as an interface between all relevant national stakeholder groups (higher education institutions, companies, business organizations and public authorities),
- Conducting an analysis of the local/national context and adaptation of the recommendations designed by the EDU-LAB partnership consortium to the specific context
- Defining individual goals for the respective countries such as fostering the creation and pilot testing of professionally oriented study programs at higher education institutions, contributing to the amendment of higher education acts, enhancing the cooperation within the quadruple helix
- Monitoring of the pilot activities and sharing the lessons learned

## Pilot projects

The chosen approach as well as the individual national project targets were defined according to the different situations in Bulgaria, Serbia and Slovakia. Each pilot country performed an analysis focusing on the following questions:

1. Do existing higher education acts allow the creation of professionally oriented study programs?
2. What is needed to make the creation of professionally oriented study programs possible?
3. Is there a systematic cooperation between higher education, business, administration and civil society?

Based on the answers, individual realistic targets were defined for each pilot country and individual action plans were created to define the steps that are needed to reach these goals.

### Bulgaria

The analysis performed by the Bulgarian partners identified three sectors to focus the pilot activities on: Mechatronics and Automation, Chemical Industry and Tourism. The first professionally oriented study program should start in winter term 2019/2020 at the Technical University Sofia, Sofia University and the Chemical Technology and Metallurgical University.

In Bulgaria, the National Academy for Professional Education as coordinating body is in the process of establishment.

### Serbia

Based on the performed analysis, the Serbian partners decided to update existing study programs in the fields of finance, marketing and management with the Faculty of Economics, Finance and Administration at the University of Belgrade. A pilot study program in cooperation with the company Gorenje d.o.o. Beograd started in September 2018.

The Law on Higher Education, adopted in 2017, foresees the establishment of employers' councils at each higher education institution to give a better insight into the labour market and to better align the higher education sector with the needs of the business sector. The novelty is that the Chamber of Commerce and Industry of Serbia nominates two members of the Council. Furthermore, a new law on professionally oriented higher education is expected to be adopted by the National Parliament by the end of 2019 and the results of EDU-LAB as well as recommendations prepared within the project will be taken into consideration and incorporated where possible.

### Slovakia

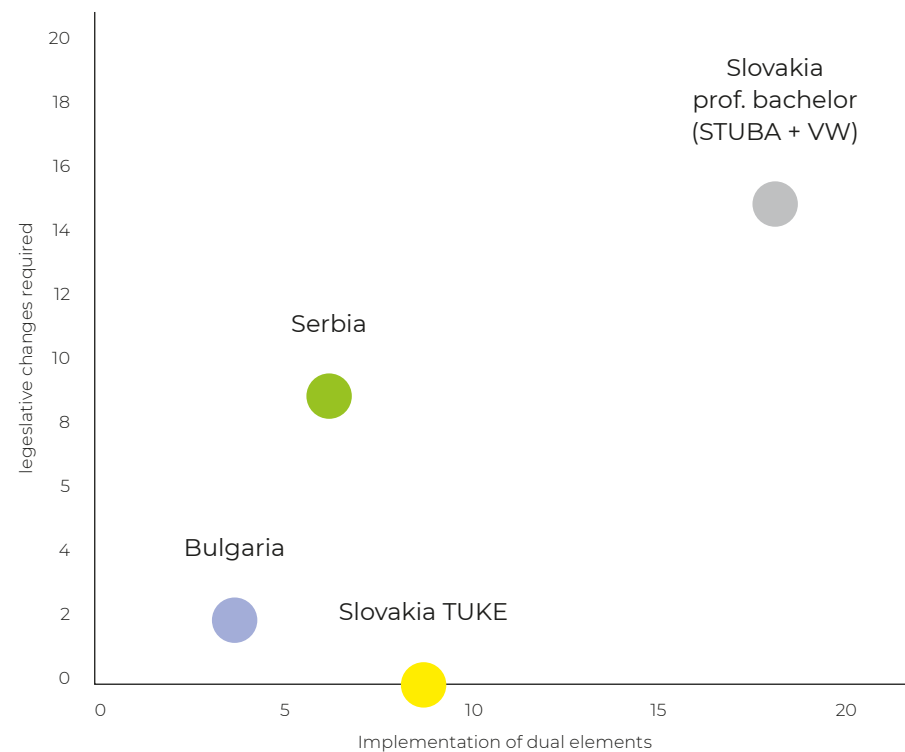
In Slovakia, two different approaches were defined for enhancing the link-

age between labour market needs and the offers of higher education:

A) The 1st Slovakian Professional Bachelor Programme was accredited and launched in September 2018 at the Faculty of Mechanical Engineering at the Slovak Technical University in Bratislava in cooperation with Volkswagen Slovakia. Recently, seven further partner companies have joined the pilot study programme. The Slovak Accreditation body for university study programs has used its right in early 2018 to define specific accreditation criteria for professionally oriented bachelor's degree programs, which had been absent before. The Ministry of Education approved these criteria soon afterwards.

B) The Technical University of Košice (TUKE) adapted existing study programs to the labour market needs at the Faculty of Electrical Engineering and Informatics (FEI) and at the Faculty of Manufacturing Technologies with a seat in Prešov (FVT). For this reason, two pilot projects were designed within Slovakia.

The below chart shows the extent to which the pilot activities reached the targets (intensity of practice-based elements implemented in the pilot study programs and the level of done/planned legislative changes enabling professionally oriented study programs:



## Compilation of lessons learned in three pilot countries

The acronym EDU-LAB has a double meaning: it stands for education and labour (market), but also for laboratory. The pilot activities proved that experiments can be very useful and result in impressive achievements. Thanks to the testing of the EDU-LAB guidelines and tools, the partnership consortium has been able to conclude that the jointly developed recommendations are feasible. More importantly, the lessons learned, presented on the following pages, sum up the experiences gained throughout the piloting process, providing useful guidance on finetuning the EDU-LAB tools and recommendations to a specific national context.

The lessons learned are structured as follows:

1. Analysis Before: an analysis of the current state in higher education regarding the professional employability of the graduates (from the point of view of universities, business as well as students, at the same time considering barriers in legislation, institutional capacities and time frame)
2. Assessment of possible solutions from stakeholders' point of view and recommendations for alternative solutions for professionally oriented study programmes (including a survey

conducted in the form of structured interviews and workshops)

3. Analysis After: an analysis of the effectiveness of solutions adopted and implemented within the pilot activities, from the stakeholders' point of view, compared with the starting position

The specific lessons learned from Bulgaria, Serbia and Slovakia that are based on four pilot projects include key findings, main achievements and recommendations and are presented the next pages via the above-described structure. The full version of the analyses, written in the pilot countries' national languages, will be available at the project website for download.

### Current state of higher education in Slovakia

The aim of the analysis is to provide a comprehensive picture of the present state of higher education (HE) in Slovakia, presenting issues, facts and data relevant for the implementation of necessary changes fostering the role of professionally oriented study programs.

The first chapter deals with the current characteristics of higher education in the Slovak Republic related to reaching a better compliance with the needs of the labour market.

In recent years (since 2016 at latest), several higher education reform initiatives were started – initiated not only by the government side, but the different representations of employers as well. At least two key factors can be identified as drivers that motivate employers' involvement in initiating change in higher education:

- 1 The fundamental shortage of qualified labour in sectors with high added value for the national economy (Slovakia is highly industry oriented and needs structural changes in the context of technological development, where the most advanced trends are Industry 4.0 and digitalization). The deficiency concerns both:

- the total number of graduates enrolled in the necessary fields of education,
  - the quality of their qualifications (including practical skills) to meet the needs of employers
- 2 The lack of willingness of other stakeholders to contribute to fundamental changes (or implement them in a dynamic way with a clear strategy). This is due to the absence of
    - openness of the higher education system for cooperation with external partners (both in the field of research, development and innovation as well as related to learning outcomes);
    - openness of political representations to conceptualize and in particular to promote and drive the necessary changes.

The conducted analysis identified several issues that Slovakian higher education needs to overcome to better prepare the students for the labour market:

- The performance of Slovak higher education is rated as low by international standards.

- Higher education institutions function in a highly isolated manner due to legislative norms defining their self-government mechanisms, and they do not cooperate systematically with external partners (business, regional entities etc.) and international partners;
- higher education institutions lack the necessary financial capacities resulting in low remuneration of staff. Furthermore, the subsidy system is also criticised for not supporting enough diversification, excellence and employability of graduates
- Slovakia is one of the higher education markets heavily affected by brain drain. Around 15% of secondary level graduates are leaving the country for university studies abroad with very low return migration.
- A mismatch between the qualifications offered by the institutes of higher education and the needs of the labour market leads to a high proportion of higher education graduates working in positions which would require only secondary education (about 35%) and to a high proportion of graduates working in a different field compared to the major in which they graduated (more than 55%).

### The analysis before

The EDU-LAB partnership recommends the introduction of professionally oriented study programs to overcome these challenges. Following a longer public debate on the role of professionally oriented study programs in Slovakia there is also a consensus within the representations of industry as well as within a part of the technically oriented higher education institutions (and recently also within some political and executive bodies) that the professionally oriented sector of higher education should play a significant role in the eventual higher education diversification process.

In 2018, Slovakia has introduced specific criteria for accrediting professionally oriented bachelor degree programs. These include a compulsory involvement of industry partners and a high proportion of practical schooling during the study programme. Thus, the implementation of such study programmes became possible but it depends on several factors, which are in support but also can become a threat to a successful development of this new higher education sector. We have summarized these impact factors as follows:

### Conclusions of analysis before

Based on the predispositions of the existing system of higher education and legislative framework, the EDU-LAB project through its Slovak project partners – the Automotive

### SUMMARY OF IMPACT FACTORS – SLOVAKIA 2018 \*

BUSINESS COMMUNITY	HIGHER EDUCATION INSTITUTIONS	ENVIRONMENT
The labor market indicates the need for professionally oriented bachelors (especially industrial associations are active, on the other hand e.g. IT associations are more ambiguous in supporting these programs).	The university system needs a reform that will produce more bachelors for the labor market	The space for professional bachelor's programs is created in legislation.
High demand in the professional sector on STEM graduates – technical and engineering majors, in part natural sciences and IT graduate profiles.	Professional higher education and a bachelor's degree qualification does not have a tradition in Slovakia, and as a segment does not exist – international comparison show, that it should be created.	The accreditation of new bachelor's programs has no tradition and precedent.
The business community is ready to participate in the creation and implementation of study programs.	There is no relevant staffing for the new programs at universities (with capacity to introduce new content and ways of teaching).	Political representation, nor executives show actively support for this change.

\*We have used green colour in the respective fields to indicate supporting, positive factors and have used grey colour in fields where we indicate threat, risk, and negative impact.

BUSINESS COMMUNITY	HIGHER EDUCATION INSTITUTIONS	ENVIRONMENT
The business community does not communicate unequivocally willingness to participate in financing programs and related changes.	Along with implementation of their Bachelor's programs the HE institutions do not consider fundamental changes in their missions and profiling (as a consequence of overall set up in state funding), so these are perceived only as complementary considerations and attempts.	There is no communication campaign to promote this change.
Across the business community, it is challenging to reach agreements, consensus and collaboration.	The implementation of professional bachelor's programs is not accompanied by the redirection of the focus of respective HE institutions toward applied research and innovation.	Public opinion is still set to prefer the so called "full higher education completion" (which means the gain a Masters degree).
The partnership of universities and employers in order to establish professional bachelor programs is not negotiated yet (and some degree of distrust and uncertainty of the partners is present).		The cohort of HE study candidates lacking part of the best talent (aiming to study abroad) is actually suitable for offering professionally oriented programs – with an impact on better career prospects.

BUSINESS COMMUNITY	HIGHER EDUCATION INSTITUTIONS	ENVIRONMENT
There is no room being opened for external partners (including employers) to participate in university management and staffing.		The image of universities in the public and among the candidates for study is impaired, there is a widespread view of poor quality and mistrust toward HE institutions' performance – it may affect the potential acceptance of innovations in programs (their credibility).
Financial expectations from EU structural funds become inhibitors of initiatives (many are just waiting for the opportunity to source these and do not look for other ways to fund activities).		The developing structure of position and qualification on the labour market – especially with regard to the necessary competencies - creates space for professional bachelors.
The business community does not understand the internal processes in universities.	Universities do not understand the functioning of the business sectors.	
	New programs need new competency profiles of graduates (responding to labor market forecasts)–these are not clear for now.	

BUSINESS COMMUNITY	HIGHER EDUCATION INSTITUTIONS	ENVIRONMENT
	The attitudes of the academic community often devalue the capacity of the external environment to participate in the formation of curricula and the realization of teaching or research.	
	Higher education institutions are underfunded and have no resources to bridge changes.	

Industry Association of the Slovak Republic and the German-Slovak Chamber of Industry and Commerce – supported and facilitated the creation of new professionally oriented study programs in Slovakia. One of main impacts of EDU-LAB in Slovakia was the acceleration of the accreditation process of professionally oriented higher education and the creation of the 1st Slovak Professional Bachelor Program, that was launched in September 2018. Even though the first legislative basis for the creation of professionally oriented study programs was given through a new Law on Higher Education in 2013, defining a specified differentiation of “professionally oriented” from “academic” bachelor’s

degree study programs, neither a new professionally oriented bachelor’s degree program was accredited nor implemented until 2018. Without any further conditions and precise criteria for universities and companies stipulated, no development in this field was reached.

The most important normative change in this sense came in 2018. A legal and executive base was introduced which defined a more specified concept introducing strict criteria for accrediting professionally oriented study programs giving a bachelor’s degree. This set a new milestone in Slovak higher education. The Slovak Accreditation Body for university study programs has used

its right in early 2018 to define specific accreditation criteria for professionally oriented bachelor’s degree programs which were absent before. The criteria include the following areas of requirements:

- Demand in the society for the study program, proven by contractual relationships between the school and the employers or employer organizations
- Contract on collaboration on the program with employers, including practical training
- Mandatory internship with the cooperating company/organization during studies, lasting at minimum one semester (divided at most in two time slots)
- Standard length was set to 4 years (with other options possible if reasonable)
- The program has an academic and non-academic guarantor (senior practitioner)
- Requirements on staff (academic and non-academic) are set
- Requirements on assets and equipment
- Evaluation criteria for higher education institutions include research results, assets and equipment, staffing
- Evaluation criteria for the program include content, admission criteria, graduation criteria, graduate profile delivery

Based on this regulatory improvement, the first pilot study program was accredited already in 2018 (at the Faculty of Mechanical Engineering at STU Bratislava with Volkswagen Slovakia). The next submission for accreditation is being submitted in 2019 (partly using financial support scheme from EU structural funds).

At the same time, with the launching of the Professional Bachelor Program, relevant data was collected in all regions of Slovakia between August 2018 and March 2019 to assess the possible alternative solutions for professionally oriented higher education and to evaluate the effectiveness of solutions adopted and implemented within the EDU-LAB pilot activities. Data was collected through structured interviews and workshops with all relevant stakeholders: employers, higher education authorities, Ministry of Education, students and university graduates.

### The analysis After

The Slovak pilot project partners, the German-Slovak Chamber of Industry and Commerce and the Automotive Industry Association hired an independent survey institute to conduct the analysis. As a part of the analysis, surveys with all stakeholder groups (six universities with STEM faculties, employers involved in pilot projects and students) were carried out. The survey addresses possible solutions for professionally oriented higher education and provides a verification of

effectiveness of the measures already taken from the stakeholders' point of view. This was in line with the EDU-LAB project targets to implement the pilot activity and test its feasibility in the local environment (under legislation framework, institutional capacities and actual setting on activities at universities and companies).

All interviewed university representatives described cooperation with employers as well-developed, including adjusting education contents to industry needs. Companies provide possibilities for practical training and take part in bodies established at the universities who develop proposals for curricula adjustments. Though capacity for students' practical training in companies is limited (by far not all students can participate), there is a lack of funds which would cover the costs of the company and the company tutor for the student. The study found the following best practices for cooperation between universities and employers:

**Combined Study Program:**

- Specific curriculum developed together with the employer
- 70% e-learning and 30% learning at the employer
- Memorandum of cooperation University-Employers:
- promote a strategic and cooperative partnership

**Company academy:**

- Special curriculum provided as additional training for students beyond the study program – with final certificate
- Education provided by practitioners and foreign experts

**Paid apprenticeships:**

- The employer provides not only company excursions, as a part of the curriculum, but also paid apprenticeships for the most talented students

**Startup incubator:**

- The university and the companies provide working space for student start up teams at the university, skills development through workshops, direct access to professional tools and machines (electrotechnics, IT, machinery, etc.)

**Center with high tech tools:**

- Well-equipped university center acquires scientific/research/construction contracts (students participate)

The conducted analyses found that the opinions on the professional Bachelor programs are still highly differentiated ranging from readiness to take the next steps towards accreditation to refusing these types of programs as not suited for university level. In the latter case, they are viewed as rather higher secondary education, with lack of tradition, potentially downgrading the institution providing the program).

The results clearly show that a change of mindset is needed. To achieve this, the study sees a necessity to develop large scale communication campaigns addressing the public and specifically to applicants from the side of employers. Furthermore, regional cooperation with key industry players (large enough and in close proximity) has to be achieved. It is important to have a good cooperation with secondary level schools with the right applicants for universities.

Overall, the study underlined the recommendations formulated by the EDU-LAB partners to be accurate by suggesting the following best practices for creating professional bachelor programs:

- Regional companies were consulted and a memorandum of cooperation signed
- Capacity for graduates' employment, available facilities and staff for training were researched and agreed
- Mixed working groups of university lecturers and experts from business worked together to define priorities for curricula
- According to these priority topics, contents and forms of learning were proposed
- For instance, the complete third year of study will be in the form of practical training in the company, foreign language training in the course of study includes also 3-5 applied subjects taught in English (at least one during the second and

fourth year of studies), representatives from the company side will participate in the selection process, a common basis of the curriculum for all students in the program will be diversified in later stages due to specific needs of specific partner employers (down to a number of 2 students following one "company profile")

In a second step, secondary data was collected through student surveys conducted in form of structured interviews and workshops with an objective to gather feedback from students on their studies and educational institution.

Students are stressing the importance of their expectation to receive practical and applied education, but report that their real experience does not meet this expectation. More emphasis on practical and applied elements of study is their top recommendation for improvement. They also recognize the necessity for improving preparation in transferable and soft skills. Moreover, the study shows that entrepreneurial skills are the least well-developed.

We can also recognize that the improvements most significantly proposed by respondents include emphasis on: "practical and applied elements of study", "foreign language and operating in international environments", "transferable and soft skills", "more options to combine different subjects, to create own specific professional/competence profile".



Regarding the added value of their present studies, respondents stress “personal development”, “ability to learn” and in third place “working career”. At the bottom two ranks (out of 7 choices) are: “adapting to future changes in the labour market” and “entrepreneurial skills development”.

These pages have been designed to summarize the key points of a complex research. The survey findings in full version as well as the whole document are available on the project webpage.

### Summary of feedback on implemented pilot – professionally oriented bachelor’s degree study program

Professionally oriented study programmes have had a long tradition in many European countries and Volkswagen Slovakia, one of the key employers in the Slovak Republic in the field of automotive industry, has been inspired by these best practices from abroad.

In the past, Volkswagen Slovakia experienced a mismatch between the skill supply and skill demand on the labour market. Despite the increased number of university graduates, there was a shortage of technical graduates with a mix of hard and soft skills. As employers usually want to hire employees ready to work (not needing additional training), such graduates did not

correspond to their high expectations. The company started to work on a concept that would bring education closer to the labour market needs. As we have already mentioned before, the introduced legislation from 2013 has already defined “professionally oriented” bachelor’s degree study programs. This option seemed to be the solution to the problems the company faced. In 2017, the company in cooperation with the Faculty of Engineering of the Slovak University of Technologies (STU) in Bratislava, launched the first professionally oriented study program in Slovakia, not yet accredited, with 10 students.

As mentioned above, specific criteria of accrediting professionally oriented bachelor degree programs were in the process of creation. The Slovak Accreditation body for university study programs has used its right to define specific accreditation criteria for professionally oriented bachelor’s degree programs. The Ministry of Education has approved these criteria soon afterwards, in February 2018. Based on these legislative changes, the Faculty of Mechanical Engineering of STU in Bratislava in cooperation with Volkswagen Slovakia was the first educational institution in Slovakia which applied for accreditation of professionally oriented bachelor study program and so the pilot became the first accredited professionally oriented study program in Slovakia, starting from September 2018. Afterwards, seven further partner companies signed a Memorandum

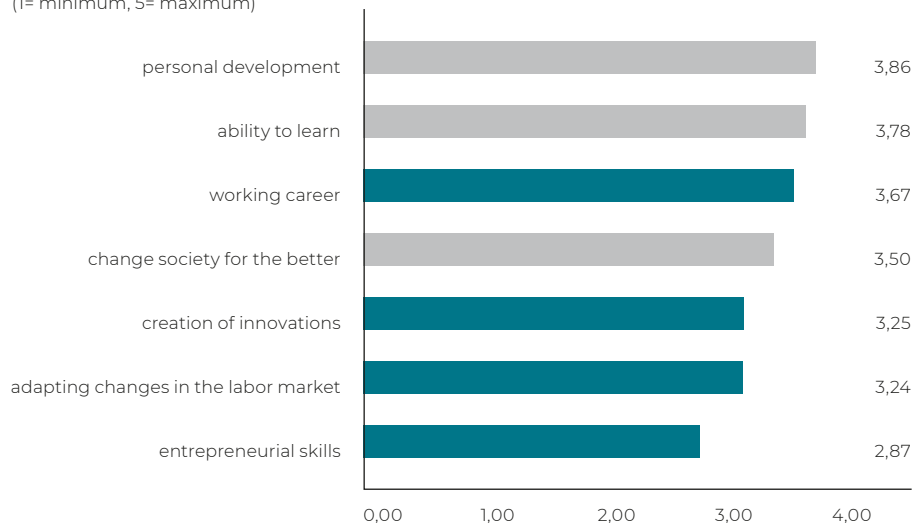
of Understanding and have joined the pilot study program, namely Schaeffler Slovensko, ZF Slovakia, ZKW Slovakia, Continental Automotive Systems Slovakia, BOGE Elastmetall Slovakia, Brose Prievidza and Benteler Automotive SK.

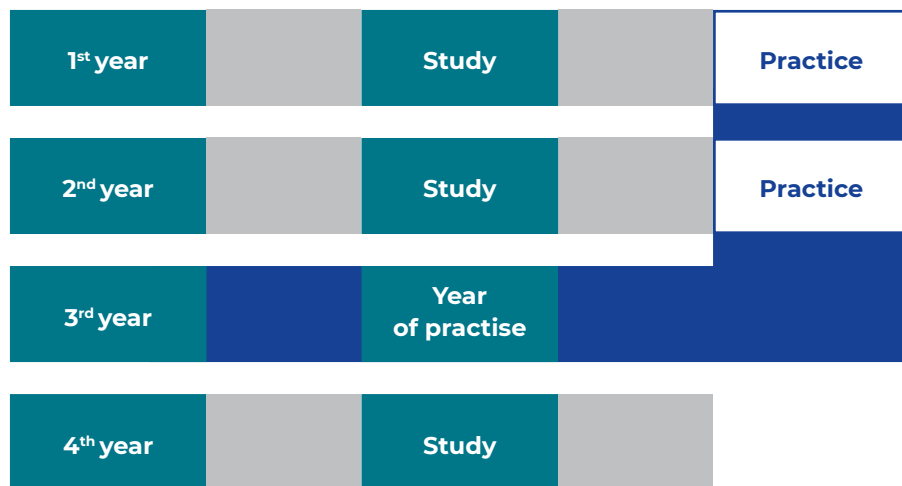
The study program is structured in 4 years and corresponds to the level of the other undergraduate programmes of the university. However, the program puts a stronger emphasis on practical training, combined with theoretical studies. The illustration below shows the structure of the study program.

As seen in the illustration, the first and second year of study focuses on laying a theoretical foundation, serving as the basis for practical skills. In the third year, students will be employed in one of the eight transnational partner companies based in different regions of Slovakia. Providing work placements for students in the country can mitigate brain drain from the region. Finally, 4th year students prepare their thesis with the assistance of mentors from both the university and the company. During the professional practice, students are supervised by their tutors who explain how to apply the knowledge in the practice. The students can even rotate throughout other departments and are involved in various projects. During the whole study programme each student is supervised by a mentor from the management whose duty is to guide the students and to motivate them.

### To what extent is your study a good basis for:

(1= minimum, 5= maximum)





Both the mentor and the tutor play an important role in the student's development: the mentor in his/her personal development and the tutor in the professional development. Both are key actors in the successful development of the project.

The study program has two guarantors – one from the company and one from the university. Their responsibility is to develop curricula and to modify the content of a syllabus.

As the Slovak professionally oriented bachelor study program is relatively young, we have encountered several challenges we have to solve in the future. These include:

- Creating a contract between the company and the student for professional practice in the third year of study

- Possibilities of internship abroad
- Improvements in student's project submission and evaluation processes and quality assurance
- Development of continuing the professional Bachelor study program through a Master's program
- Further improvements in the rotation plan of students within the companies

All this goes to show that the professionally oriented study is the result of harmony of two entities – the university and the employer – the cooperation of which is based on terms and obligations agreed in advance and stipulated in their contract.

### Key findings from the 1<sup>st</sup> launched professional bachelor study program

The key findings from this phase of the newly launched professional bachelor study program are based on the experiences of employers as well as on the conducted survey with students and cover areas, in which activities have been already started but need further attention, starting from secondary legislation adaptations, change of mindset in society towards such bachelor study programs up to changes in financing systems of universities and increasing motivation of creating such programs. Also, the following issue has to be reconsidered – an active promoting of the key facts on professional bachelor towards potential students together with a coordinated concept for encouraging students to apply, agreed on with companies, universities and partially extended also to secondary schools.

From the student's perspective, the feedback is very positive on the extended practical part of studies, it even demands a bigger time volume. This is despite the fact that the professional bachelor program is also more demanding than other bachelor's level programs at the same faculty in some aspects, including a more intense schedule and a higher level of requirements in several subjects. Competencies, which are the most challenging to master at a high-quality level are mathematics, physics, transferable

soft skills (including foreign language, project management and presentation skills). In this regard, the development of new solutions to improve students' performance between employers and faculty and are still in process.

Each student has an individual mentor among company managers. This proves to be of high success (not only valued by students as very beneficial and motivating but as well-valued by managers as a great opportunity to understand better the new generation of employees and their study experience). The study finds that mentoring is a motivating factor for students.

However, one of the key burdens perceived at the present stage of implementation is the unsolved legal framework in the tax area – students' stipend. This financial tool should support the whole concept and be an important incentive for employers as well as a student. At present this stipend taxed the same way as any other employment income, resulting in a higher cost for the employer and lower net income for the student.

For employers, it is also important to clarify that it is a myth that graduates from this type of professionally oriented programs cannot continue in the second level of university study, which is of interest for most Slovak students. At the same time, employers need to express their interest in employing such graduates,

even without a master's degree and offer and publicly present relevant job positions.

In terms of new students acquisition it will be important to communicate strongly to the general public (mainly from the side of employers) that a graduate from this type of bachelors' program (first level university program) is more valuable on the labour market compared to programs lacking such practical skills gained directly at the company during the studies.

### **Conclusion drawn from the implementation of the pilot project**

It is clear that the implementation of the first professional bachelor study program and its continuation with new set of partners in year/volume 2 from September 2018 will have a strong impact and will drive change in the context of Slovakian higher education.

Based on this implementation experience, the powerful positive impact factors consist of:

- Legal and normative changes in higher education supporting the accreditation and implementation of professionally oriented bachelor programs
- Clear ambition of the Ministry of Education to motivate universities to implement professionally oriented bachelor programs and implementing a structural change in favour of a higher

number of bachelors leaving for jobs and a lower number of students continuing their studies at Masters level

- Support scheme financed from EU structural funds for preparing and implementing professionally oriented bachelor programs as well as to support practically aligned education
- Pro-active communication of employers' representative bodies with government and representatives of higher education on necessary progress in the field
- Development of the labour market and the higher education sector based on facts, data and international benchmarking

However, employers still perceived several serious obstacles during the pilot implementation, such as the highly varying commitment of higher education institutions to agree and collaborate on required changes as well as the financing of higher education that is currently not incentivizing such changes. Furthermore, there is a lack of legal changes in the taxation of student income during work in companies – for companies as well as payment recipients. New arisen myths support the stereotypes in public opinion: degrading bachelor's program graduates as not well employable and without prospects to continue education at second university level, degrading professionally oriented bachelor programs as non-academic, rather higher secondary education. How-

ever, these obstacles for the emergence of new programs are being discussed and worked on and employers are ready to cooperate with higher education institutions, participate in programs, provide positions for graduates and gradually optimize solutions.

To foster the creation of professionally oriented study programs, the point of view and motives of higher education institutions need to be taken into consideration. University respondents agree that the conditions under which these programs should emerge need to change, for instance having no financial pressure from the Ministry of Education, predictability of state financing, clear messages from labour market that graduates of these programs are well employable, flexibility in length of the programs and adjustment of legal framework concerning stipends and taxa.

The students expect more practical training, applied knowledge and transferable skills, including the capacity to act in a cross-cultural settings. It is remarkable how perfectly the reflections of students on necessary improvements in their study programs fit the priorities communicated by employers on the same subject.

Finally, government representatives have tackled several issues in response to the presented data, trends and (mainly) employers' argumentation. Legislative changes were im-

plemented, which define conditions for professionally oriented bachelor programs. These were followed by requirements to change the percentage of graduates (increase the proportion of bachelors in comparison to masters). Nevertheless, more BA level graduates leaving for the labour market would impose a pressure on higher education institutions which was stressed in several discussion rounds. The government has also introduced (despite the longer delay and in limited extent) EU structural funds, offered to support the preparation and implementation of professionally oriented bachelor programs and to support practical training of students.

For employers as well as higher education institutions, the lack of student (applicants) interest in professionally oriented programs remains a major threat. Innovative approaches to cooperation with secondary schools are being considered. Another major issue limiting the efficiency of technical education (concerning not only professionally oriented bachelor programs) is the decreasing level of knowledge and skills in secondary school graduates – incoming students (mainly in math, science, foreign language skills) and the capacity to improve this deficit during university study.

## Conclusions of analysis after

As described and summarized above, the necessity to establish a closer links between offers in higher education study programs and the labour market needs was verbalized by all relevant stakeholder groups and several important steps in this field were taken in Slovakia. Two milestones were achieved also thanks to the EDU-LAB pilot activities: accreditation criteria for creating professionally oriented study programs were approved by the Slovak Ministry of Education in February 2018 and the 1st accredited professional bachelor study program was successfully launched in September 2018 at the Faculty of Mechanical Engineering of the Slovak University of Technology in Bratislava, together with Volkswagen Slovakia.

These were important steps aiming at solving the acute shortage of the qualified workforce in the labour market systematically and sustainably. The increase of applications for the creation of professionally oriented bachelor study programs at further new faculties in Slovakia in early 2019 prove that a shift in mindset has started.

Also, the Ministry of Education underlined the set priorities through a public call "University for Practice" in December 2018 aiming to support and enhance the creation of further professionally oriented study programs among Slovak universities. This initiative is supported by non-repayable financial contribution for

universities. Furthermore, a new Accreditation Agency according to EU requirements was established which will bring an important change to the accreditation system in Slovakia. The highly expected new standards regarding accreditation of new study programs will be introduced in autumn 2019, which will have a great impact on higher education.

Besides these tangible results, EDU-LAB contributed significantly to establishing a coordination platform and connected experts from all relevant stakeholder groups in Slovakia with each other. Representatives from universities, companies and business organisations, employer associations as well as diverse public authorities meet and search for solutions regarding better linkage of higher education with labour market needs on a regular basis. Moreover, EDU-LAB international project partner and stakeholder meetings enabled great knowledge transfer and building up of an international network of experts, which proved to be very valuable for Slovak stakeholders.

The EDU-LAB project partners from Slovakia expressed the interest to further enhance the activities in a possible follow-up project. Since the pilot implementation of professionally oriented study program was successfully launched, many new topics have arisen including a change in the mindset of society towards this shift in the higher education system towards labour market needs.

## Conclusions from the analysis before

Based on the ANALYSIS BEFORE, the conclusions for “Lessons Learned” can be summarized in three areas. The first area concerns national findings where the following should be considered:

- 1 Employers (especially in the automotive industry and in the IT sector in Košice) have been complaining about the lack of skilled labour for several years. Industry 4.0 has brought and continues to bring increased demands for the introduction of new technologies, on the one hand, and the changed requirements for graduates on the other.
- 2 Unfavourable demographic development is also associated with a decline in the number of 19-year-olds admitted to universities. Since 2010, the number of 19-year-olds has dropped by more than 26%, but the number of first-grade admissions to tertiary education has fallen by more than 39% over the same period. For the years 2007–2017, the number of public higher education students decreased by almost 39%, while in the case of private universities the decrease was 56%.

- 3 Most public university students in the first two stages study in social sciences, teaching and services.
- 4 In natural and technical sciences, graduates are highly sought in the labour market, about 25% students study in these fields, which is almost about five percentage points less than the EU average. It is even less on average in V4 countries (by almost three percentage points).

The second area of findings from ANALYSIS BEFORE focused on the Faculty of Electrical Engineering and Informatics (FEI) at the Technical University of Košice.

In 2015, the Department of Computers and Informatics launched the project “Live IT Projects” as an effort to introduce dual education. The project is designed for fourth-year students and is the largest event of its kind in Slovakia. The event links several universities and companies with active student participation throughout the semester. The number of companies and students involved is increasing from year to year. 14 companies and 116 students participated in the 2015/16 academic year, while 21 companies and 171 students participated in the 2018/19 academic year. 30 mentors from universities and the IT companies involved provided expert assistance to

gain practical experience not only in technology and programming, but also in teamwork, project management and agile software development.

FEI has long-term cooperation based on the dual education principles with the company T-Systems.

Finally, the conclusions of the Analysis before for the second faculty involved in EDU-LAB, the Faculty of Manufacturing Technologies in Prešov (FVT) will be presented. The faculty has long-term cooperation with enterprises, which is constantly expanding.

Nowadays, students of the 2nd year of engineering degree can participate in SPICE (Student Program of Integrated Company Education), a joint project of the Automotive Industry Association of the Slovak Republic, the national development project AZU.sk, industrial enterprises, and especially technical college students. The aim of the program is to enable students to work on their diploma project through practical experience. In addition, often after graduation, a graduate remains in the company to work. The involvement of students in the program is gradually increasing.

## **Conclusions from the analysis after**

As part of the ANALYSIS AFTER, stakeholders (companies, students involved in project SPICE and FVT) were asked to provide feedback on the experience gained in participating in the project.

From the part of employers, 25 companies (20 involved in the SPICE project and five with whom the FVT is interested in working in the future) answered the questionnaire. The most interesting findings were:

- In addition to SPICE, the companies most often cooperate in solving year-long student projects, final theses (diplomas and in one case there is also co-operation in dissertations), fifteen responses related to the concluded contract with FVT on economic co-operation; enterprises allow excursions in their production facilities; but there is also cooperation on various national projects and three companies provide selected lectures within a particular subject.
- Enterprises in collaboration with FVT most appreciate getting new insights and bold, innovative ideas in solving problems, as well as the enthusiasm and flexibility of young people.

On the other hand, SPICE students appreciated the following the most:

- The possibility to work in real conditions on real problems of selected companies
- Experiencing that they can take responsibility for the tasks assigned to them and that they have the ability to be creative and flexible in thinking and acting
- Ability to identify and solve problems

However, students also gave the faculty significant feedback by answering the question concerning identifying the greatest differences between the level of competences required by businesses and the level of competence development they had achieved through the FVT. The most frequently mentioned were:

- Knowledge and ability to communicate in a foreign language (especially at a technical level)
- Ability to work in an intercultural/international environment
- Ability to take responsibility
- Ability to identify and solve problems

## **Lessons learned and recommendations**

Dual learning brings with it a number of challenges that need to be responsibly approached and which must be solved. The EDU-LAB project has shown that other technical faculties in Slovakia as well as other

countries are working on very similar issues that TUKE is working on with the two faculties involved in EDU-LAB. It is difficult to briefly describe the most serious problems that are waiting for a solution in the near future. Some of the most serious problems are the following:

- the need to invest effectively in high quality, modernized and reformed education and training;
- promote lifelong learning opportunities for all and at all levels of education and training, in particular by increasing the attractiveness and relevance of vocational education and training;
- adapt to new requirements and trends in order to ensure better matching between graduates' skills and labour market needs;
- the way of administration and implementation in the dual education system should be as simple as possible and use clear administrative procedures so that no concerned sides have to deal with unproportional burdens;
- improve the system of dual education based on international examples in order to increase cooperation between schools and SMEs. Large businesses would have a chance to make more use of the corporate school system;
- pay increased attention to the creation and strengthening of soft skills and language skills

## Further steps

TUKE is working on establishing the accreditation of professionally oriented study programs, the Faculty of Manufacturing Technologies in Prešov is preparing the accreditation of three such programs (Automotive Production Technologies, Computer Aided Manufacturing Technologies and Manufacturing Management). FVT has decided to create accredited vocational programs in order to support the linking of higher education with the needs of the labour market, through the support of the creation of professionally oriented bachelor study programs in accordance with the Criteria for Accreditation of Professional Oriented Bachelor Study Programs of Higher Education and Support of Solvency Capabilities.

## Analysis for the development Study Programs in Higher Education in Serbia

### Status quo before

#### Education system in the Republic of Serbia

Providing young people with the right skills and qualifications is not just the key challenge for Serbia but for many countries in the world. The system of education should act as a driving force of economic development and social prosperity and stability. However, the education system cannot merely have the role to just promote economic goals, it also should have the potential to improve and facilitate the transition from school to the world of work, to be accessible to all and to offer young people a perspective for planning their career and find their role in society. Serbia has started a reform process of the system of education as a part of the country's overall political and economic transition. It has committed itself to address several challenges. The most important one is certainly to address the transformation from a school-based to a dual system on a secondary as well as on a higher level of education. Such a commitment was demanding and

promising at the same time. It was demanding because there was no blueprint on how to design the change and it was promising because there was much potential for the advancement of the education system.

After the positive experiences made during the years of introducing the dual education system into the secondary level, and finally the enactment of the Law on Dual Education in secondary education in 2017, there are aspirations to do the similar endeavor in a higher education (HE), with the intention to shift a part of the higher education system towards a dual model. The policy makers have been aware that only an accelerated reform of the education and training system will help improve effectiveness and compliance with societal and economic needs. Entering into the field of dual higher education will certainly increase chances for young people in Serbia to find long-term employment in dynamic economic sectors, build up their skills and applicable knowledge in general, thus contributing to



the economic and social development of the country and promoting its competitiveness.

The Ministry of Education, Science and Technological development as the hub of the changes in education has encouraged the activities in secondary and higher education institutions in relation to promoting the employability of students, the organization of student practices, the establishment of virtual companies and other activities that provided for a firm and continuous cooperation between the educational and the economic system. During this decade, the Serbian government launched quite a number of legal and organizational actions to induce changes in the education sector. In September 2017 the National Parliament enacted the Amendments to the Law on Foundation of System of Education which ensured the enactment of the Law on the National Qualification Framework, only seven months later, as a foundation for curricula development.

Soon after, a new law regulating the concept of dual education in secondary vocational education was adopted which will become effective as of beginning of 2019/2020 school year. This law stipulates the increase in the scope and quality of practical teaching, i.e. work-based learning, as well as the involvement of the companies in a variety of activities, starting with the design of the curricula to its implementation in the real working environment. The law creates opportunity for students to explore occupations through work-

based learning. Furthermore, the Law on Higher Education, adopted in 2017, foresees the establishment of employers' councils at each higher education institution to give a better insight into the labour market and better align the higher education sector with the needs of the business sector. The novelty is that the Chamber of Commerce and Industry of Serbia nominates two members of the Council, while the Council itself is obliged to have meetings with the Chamber at least twice a year. The Chamber of Commerce and Industry of Serbia nominates two members of the National Accreditation Body, the institution established for the purposes of accreditation, higher education institutions quality control, study programs evaluation and quality assurance in higher education.

All these laws ensured shaping the education system according to the labour market demands and the society requirements as a whole, which opened the space to the idea of introducing dual education also into the higher education system in Serbia.

### **Analysis before**

The Chamber of Commerce and Industry of Serbia (CCIS) joined the project funded by the European Union which aims to improve professional chances of young people in the Danube region and better link education to employment in a sustainable way and hopefully reduce

the emigration of Serbian citizens or even to regain them. The EDU-LAB project investigates the conditions and ways to make this ambition feasible. It aims to provide relevant evidence, concepts, options, and arguments to support a rational discussion on the feasibility and modalities of a reform of the current system of higher education in Serbia towards dual studies.

The basic concept of the activities piloted in Serbia was to identify a study program which could be modernized in a way that it is adapted to the needs of the economy, with incorporated elements of dual education. This piloted study program would eventually show what the most suitable model of dual studies would be and accordingly, how to tackle potential challenges and obstacles that may appear. Finally, the follow-up analysis would suggest certain recommendations and proposals for the improvement of the whole process and legal framework. Two studies were conducted within these projects: Status quo BEFORE and Status quo AFTER. The Contractor performed the analysis of status quo in Serbia BEFORE the implementation of dual study programs with relevant stakeholders, students, professors, business representatives, state authorities and create expert study in written form.

The study was based on the interviews with 31 randomly selected students of Belgrade University, and the results are based on a combination of a questionnaire (close-ended questions), interviews with relevant

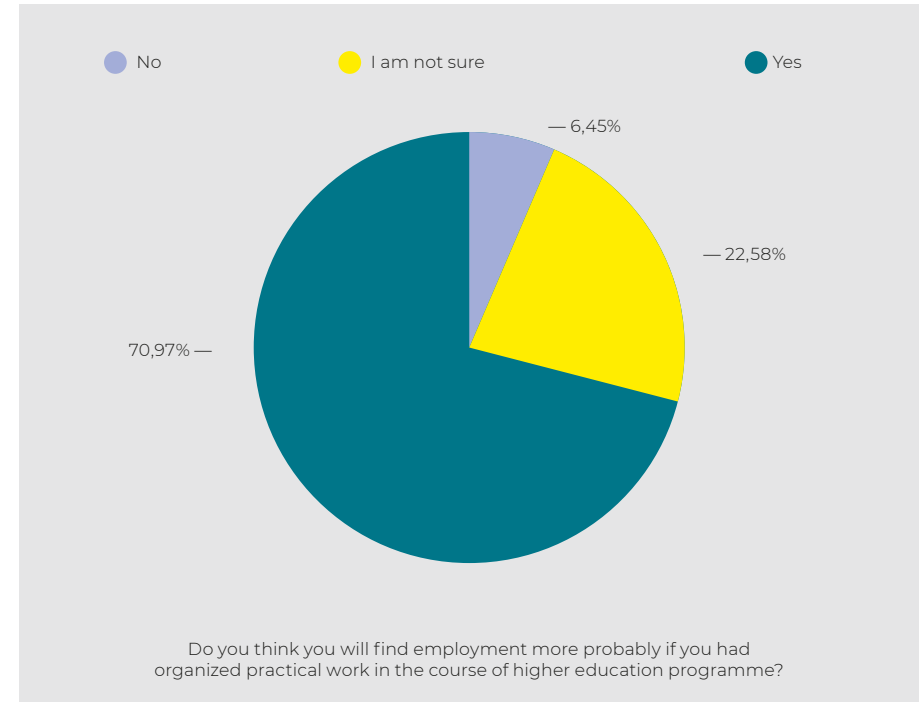
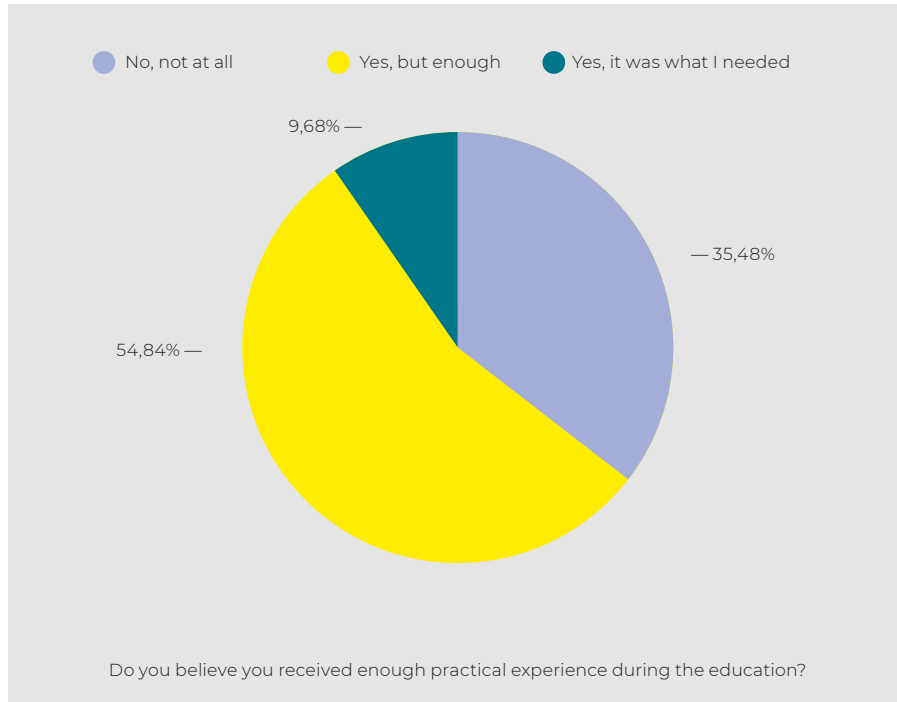
stakeholders (professors, business representatives, and state representatives) and research for publicly available information related to the subject.

The interviews took place during the end of September and the beginning of October 2018. The key expert prepared a questionnaire for the first part of analysis – the analysis of status quo before – in order to record a current state of the play considering the period without pilot dual programs. The questionnaire was prepared in consultation with the CA, and it covered the enrolled students of Belgrade University. Considering the nature of this analysis, which should be used as a snapshot of the current situation rather than a statistically significant study, it included 31 participants, chosen randomly within the targeted population. In order to gather quality responses, the survey was anonymous, and participating students were chosen randomly, from both state- and privately-owned faculties within the university. The prepared questionnaire was mostly a multiple-choice questionnaire.

The analysis showed:

- although a high number of students said they had had practical experience, more than 90% of them were not satisfied with it, with significant percentage of them having had no practical work at all

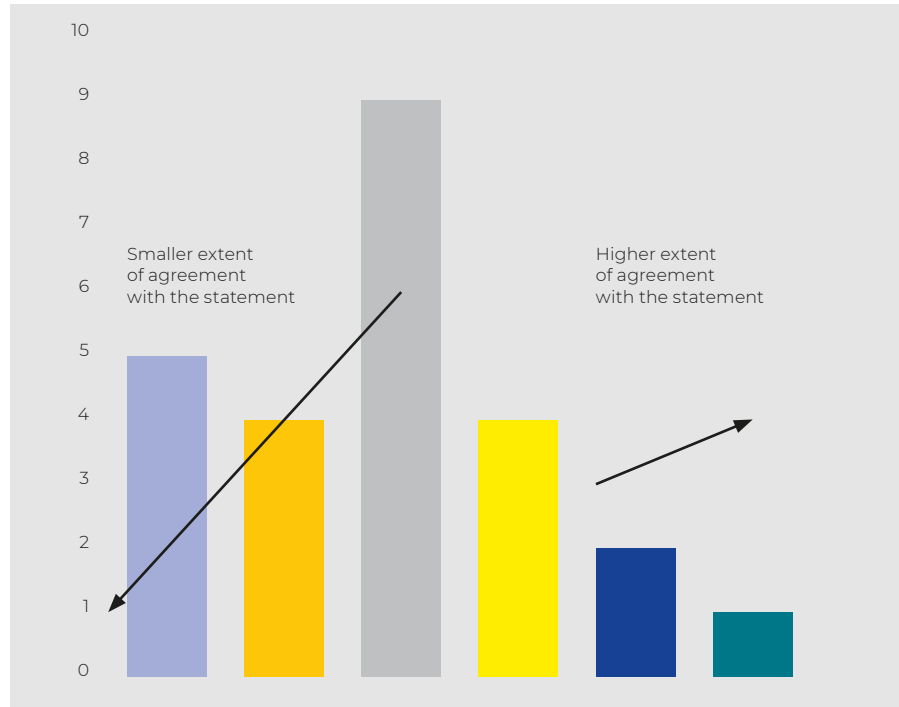
- 71% of young people participating in the survey considered they would find employment more probably if they had had practical work during studies



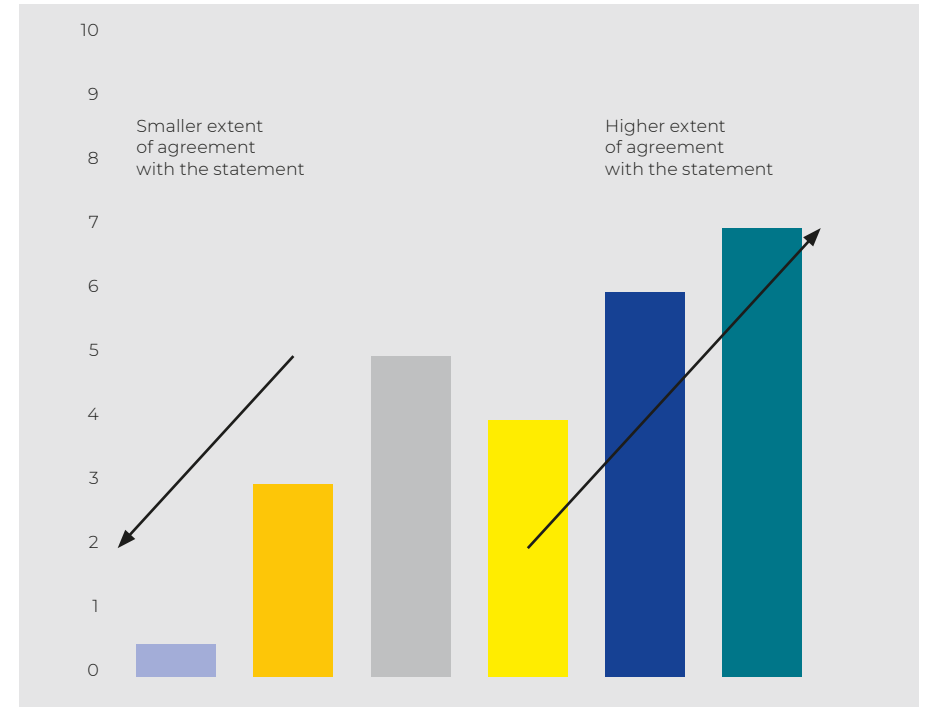
— 68% of young people participating in the survey considered they were not prepared fully for their future workplace

— 68% of young people participating in the survey claimed that the introduction of dual study programmes in higher education would prepare them better for future employment

A significant number of the surveyed students did not have enough information about dual study programmes, thus highlighting the need for better promotion.



"I believe my education programme prepared me fully for my future workplace."



"I believe that introduction of dual programmes in higher education will prepare me better for future."

## Conclusions

The mismatch of educational profiles and available work force profiles with the needs of the labor market is a long-term and systemic problem in Serbia. This process results in high unemployment rates and a disturbing growing percentage of youth unemployment. The socio-economic development of Serbia depends, to a great extent, on the quality and availability of the required labor force. The problem of insufficient cooperation between decision-makers in education policy and the employers are clearly recognized and since 2001 they have been treated with variable success and results. The problem of the mismatches of skills and knowledge acquired during higher education with the needs of the labour market affects a range of economic and social problems: budget expenditures for education that does not lead to employment, the unpreparedness of young people for transition from education to the world of work, a lack of required skills and competencies demanded for work.

Higher education institutions are not at the systemic level associated with employers of their students and their engagement in the organization of student practice drastically varies from case to case. At the same time, employers are not able to reach the required workers according to their businesses' needs, and in most cases, they do not have the capacity, resources and time for their addi-

tional training and introduction to the work environment. This results in a significant number of long-term job offerings, since it is hard to find candidates with the right knowledge and skills.

Improving student practices and the introduction of dual programs create a sustainable and effective framework for the cooperation of higher education institutions and employers and contributes to further harmonization education and labor market in Serbia.

The identified challenges related to the organization of quality dual vocational programs are:

- Different terms used in the field of professional practice and dual programs (dual vocational programs, practices, volunteering, internships, fellowships);
- Providing a high-quality mentoring system (meeting the required conditions regarding the mentor's qualities by employers, the need for mentor training, structurally organized training for instructors, the cost of organizations of such trainings, etc);
- Insufficient awareness of the rights and obligations of young people in relation to practice and dual vocational programs, as well as ignorance of the contractual forms used to regulate them;

- Identifying the form of a contract that can be used to regulate the relationship between a dual vocational student and an employer. A special issue was raised regarding the implementation of the Agreement on Vocational Training. Namely, the amendments to the Article 201 of the Labor Law of 2014 stipulate that a professional development contract can be concluded for the purpose of professional development and acquisition of special knowledge and skills for work in the profession, or for specialization, during the time determined by the training program, specialization, in accordance with a special regulation.

Possible recommendations for the creation and improvement of dual vocational programs:

- Improving youth's knowledge regarding rights and obligations within the dual program of practice
- Continuous promotion of professional dual programs
- Identification of minimum standards for implementation of the dual programs
- Harmonization of the meaning of terms used in the field of professional practice and dual programs
- Serbia accession to the European Alliance for Professional Practices (encouraging large

- companies and companies to engage in vocational training support programs);
- Arrangement of the method of conclusion and the content of the contract on professional practices (during vocational education and after completion of education);
- Establishment of the obligation of the employer to provide or at least to participate in the creation of a dual vocational program, to train the qualified mentor, verification of the achieved goals and a certificate of completed dual programme
- The tax treatment of the vocational training contract should be similar to the treatment of paid volunteering (the net amount of 30–50% of the fee should be exempted from tax)

The high unemployment of young people and difficult transition from education towards stable employment has prompted an increase in the number of programs and practices aimed at improving the employability of young people through the acquisition of work experience and practical knowledge and skills demanded in the labor market. However, there is no adequate legal protection for young people participating in programs of practice, as well as standards that would ensure their quality. A large number of young people participate in programs that are incompatible with practices.

There is a particular problem with the work-based practices on the labour market. By these practices, we mean short-term programs for acquiring work experience that include learning and training, in which all who are interested can be involved, regardless of whether they are or not in the formal education system. These practices are self-initiated - they are usually not a required part of education and training and are not prescribed by law or regulation as a condition for a certain occupation or profession, but are important for the development of skills and further employment.

Existing solutions in the Labor Law regulating contracts on vocational training and improvement do not include all forms of work-based practices and demotivate organizing such programs for the unemployed.

There are no quality assurance mechanisms of work-based practices. Two options for improving the legal framework were considered, and with that and increasing the number of quality work-based practices that increase employability of young people.

These are:

- changes to the Labor Law/ adding a new Article 200 of the Labor Law and
- adoption of a special law which refers to work-based practices.

An option that is considered to be the most up-to-date is to add a new Arti-

cle 200 to the Labor Law, given that the existing Article 201 still has its application in certain cases of training and improvement precisely in the way it is now regulated. It is necessary to provide a unique record of practices, regulate quality standards that will apply to all types of practices, increase awareness and motivation of young people, employers and competent institutions for organizing work-based practice as an important instrument in the fight against unemployment.

What can be done in the future?

- Creation and implementation of dual study programs
- Analysis and redefinition of goals and outcomes of study programs
- Creation of professional councils of higher education institutions
- Strengthening the capacities of scientific and professional base in the economy
- Creation of programs with introduction of non-working teachers in accordance with the Law on Higher Education
- Creating short educational programs on the basis of real needs of the economy and in cooperation with the economy
- Strengthening the sense of student entrepreneurship
- Preparation of rules and general acts, with the aim of clearly defining rights and obligations regarding the protection of intellectual property

## Analysis for the development of Dual Study Programs in Higher Education in Serbia

### Status quo after

High youth unemployment rates in Serbia (31.9% in 2017), in particular among graduates of higher education institutions, have resulted in Serbia losing about 32000 citizens per year who leave the country mainly for work or professional development. Brain drain, the loss of highly educated persons, is considered a severe obstacle for Serbia's economic and social development. In Serbia, 10.6% of the population have university and comparable education, which is less than half of the EU average (23.7%). The number of employees in research and development is 2800 per one million inhabitants in Serbia compared to 5000 in the EU. Furthermore, Serbia is still suffering from the occupational mismatch. The last available data (from 2016) shows that 7.1% of upper-secondary graduates work in low-skilled jobs (ISCO 9) and that 24.2% of tertiary graduates work in semi-skilled jobs (ISCO 4–9) (ETF, 2018).

The position of young people on the labour market seems still unfavorable, with a three-fold lower employment rate compared to the population aged 25–64 while the number of young

people who are not in education, employment or training (NEET) is still high – in 2017, the NEET rate in EU28 was 11.5 percent while in Serbia in the same year it was 17.2 percent.

### Analysis after

The main partners in this analysis Status quo AFTER were the company Gorenje d.o.o Beograd and Faculty of Economics, Finance and Administration (FEFA). The Chamber of Commerce and Industry of Serbia and Institute of Mihajlo Pupin had the role of coordinators of activities and facilitators in this process.

The first step was to identify a study program which could be better adapted to the needs of Gorenje and one that could be more professionally oriented. Bearing in mind the period for the realization of pilot activities within the project, all stakeholders agreed that the pilot activity should be done without intention to reaccredit the program since the process itself is a time-consuming and lengthy one. The starting point was

to increase and improve the practical part of the studies based on the Memorandum of Understanding signed between FEFA and Gorenje defining goals, forms and activities of cooperation.

The analysis was carried out in January 2019. A questionnaire was prepared by an expert for the the analysis of status quo after in order to record the current state of play considering the period after pilot dual programs. The questionnaire was prepared in consultation with the CA, and it covered the students of FEFA. The study included 31 participants, chosen randomly within the targeted group: students who participated in the pilot dual program. The prepared questionnaire was mostly multiple-choice questionnaire.

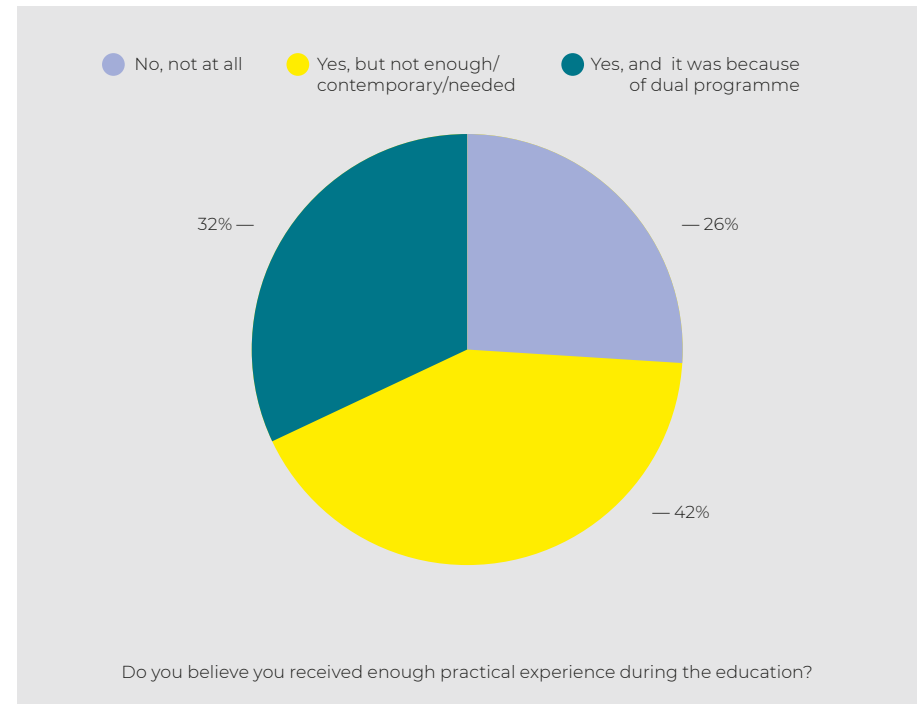
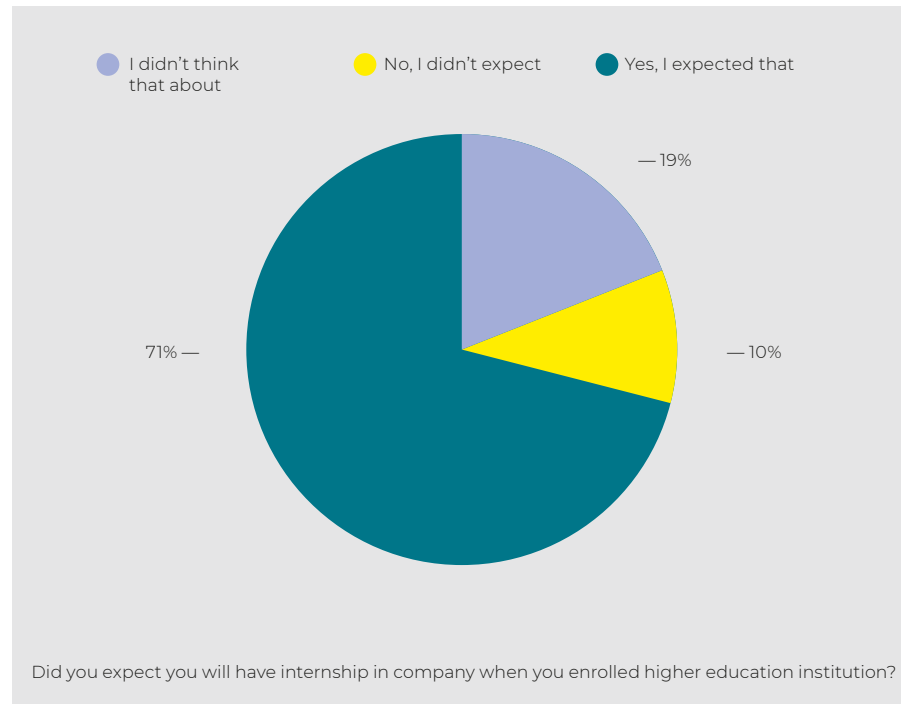
Sixteen students attending the third year of studying were involved in the realisation of the improved student practice (work-based learning) with elements of dual education, 13 in Master studies and 2 in PhD studies. The practice was implemented within the period of three months during which students had a project task closely related to the theoretical knowledge acquired at the faculty.

Upon finishing student practice in Gorenje, a status quo after analysis was implemented.

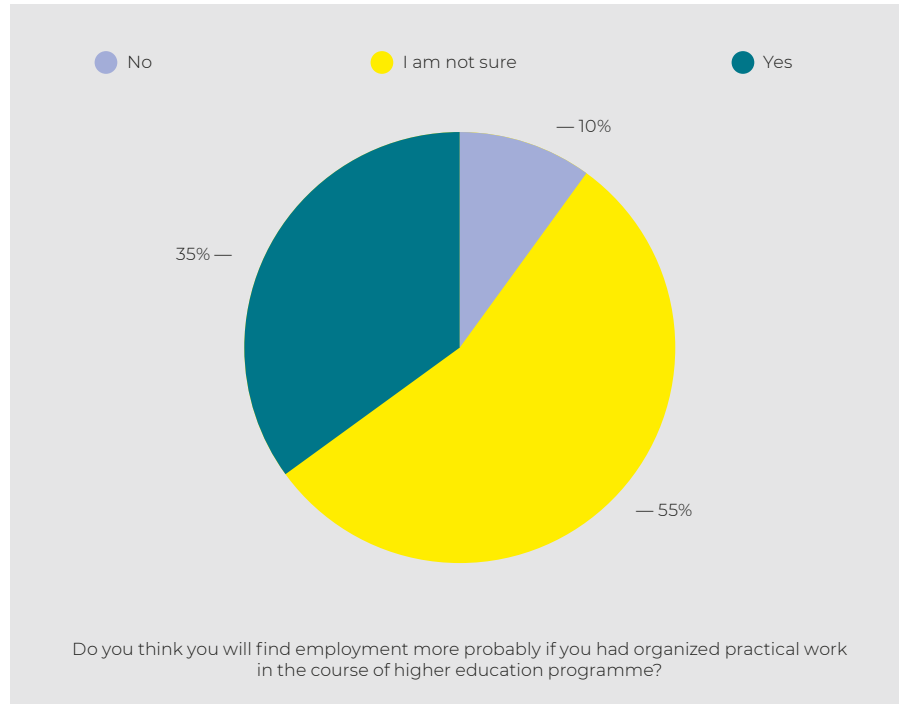
The analysis showed:

- 71% of the interviewed participants expected to have some kind of practical work during studies, while 10% did not expect that at all

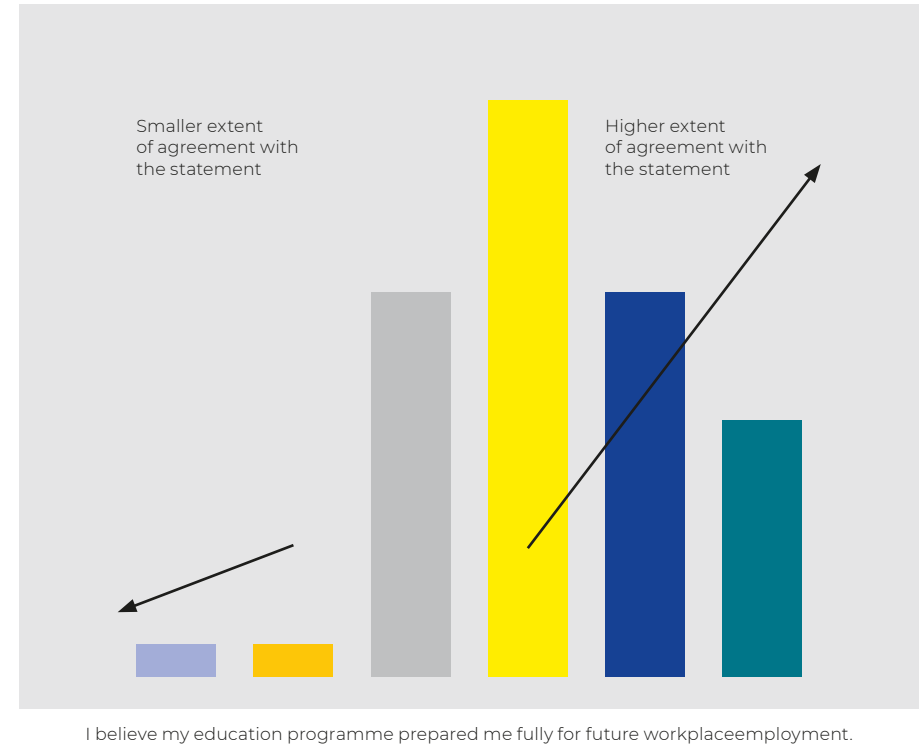
- 74% said they had received enough practical experience during studying, 56% of which believed they could have had more practical experience during the studying period, and 44% believed it was because of the dual program



- 35% of survey participants believed they would find employment more probably due to the existence of dual programs



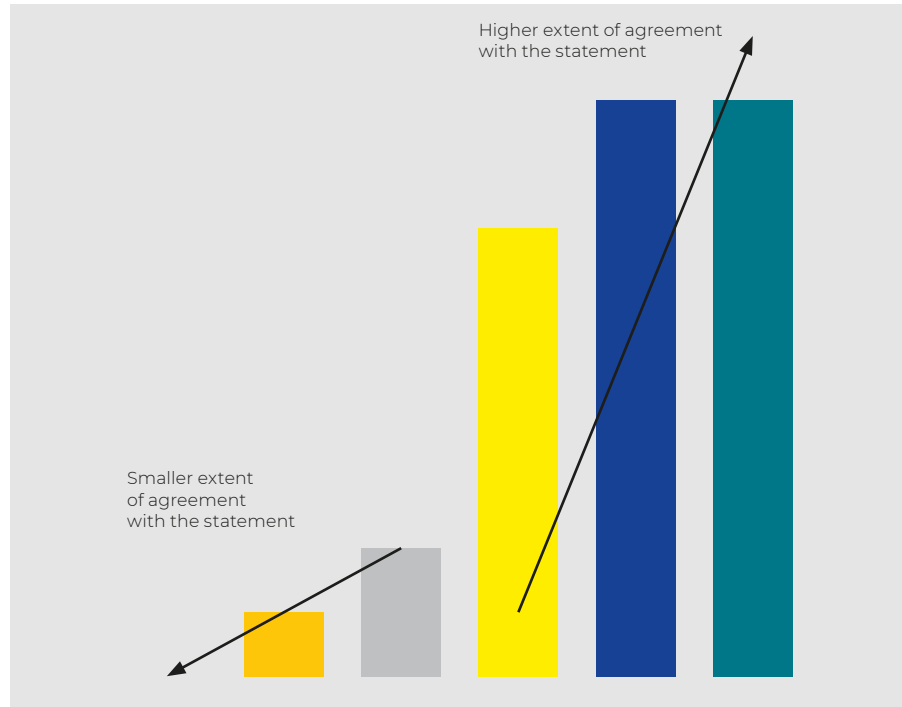
- A high number of participants (71%) believed that they were fully prepared for their future workplace. In comparison with the same question in the status quo analysis before, among the participants who were not enrolled in dual programs, where 68% believed they were not prepared fully for future workplace, a significant difference could be noted



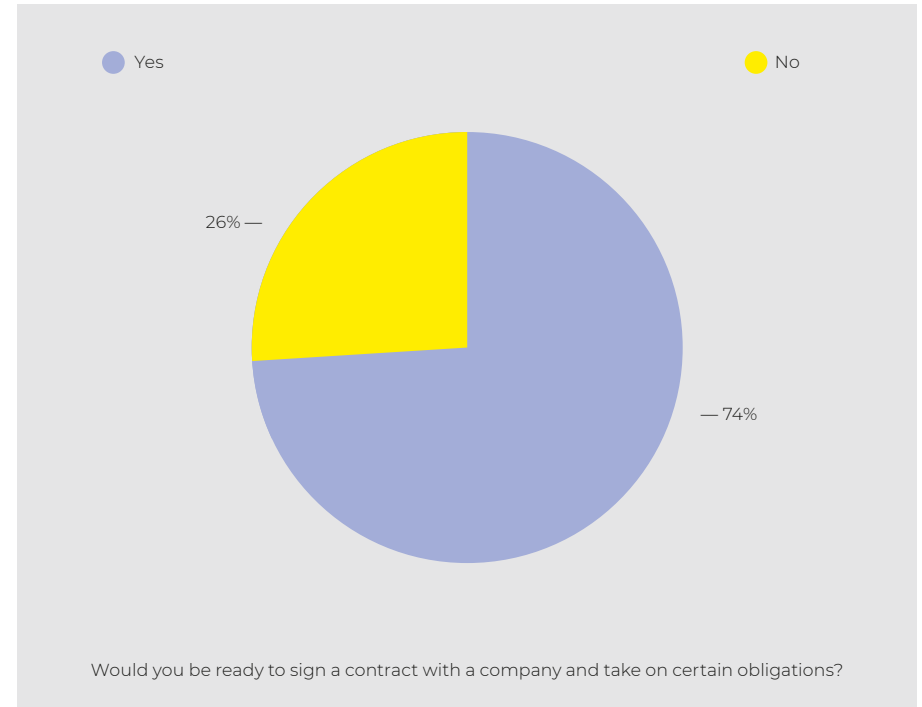
— 90% of the interviewed students believed that the introduction of dual programs in higher education would prepare them better for future employment

— 58% among the interviewed students stated they would even increase the amount of work-based learning in pilot dual programs in which they participated

— 74% stated they would feel ready to take a certain obligation and tasks when they took a job opportunity after the completion of the pilot dual program



I believe that introduction of dual programmes in higher education will prepare me better for future employment



Would you be ready to sign a contract with a company and take on certain obligations?



All interviews highlighted that the existing higher education system should be reformed in a way that the content of the study programs reflect contemporary technological development and market needs but taking our societal and economic situation into account. Representatives of companies underlined that providing students with well-organized and substantive practice will certainly increase the chances of employment for graduates and enable them to create their own jobs or even to employ others by establishing their own companies.

Furthermore, the curricula of higher education institutions have to be adapted as much as possible to current and projected trends in the business sector. It is of the utmost importance that the academic institutions provide students with the opportunity to acquire a combination of theoretical and practical knowledge in the course of their studies, which would enable them to find employment faster.

It is also necessary to establish a formal training for instructors (mentors) in the company or at least to develop the appropriate tools/guidelines, so that they could acquire the necessary pedagogical competences helping them deliver the requested learning outcomes of students. The interviewed instructors emphasized that the most significant and at the same time the most demanding part of this process is working with students, and it is necessary that this job is shared and jointly carried out by the university and

the company. It would be likely that untrained instructors would slowly adapt to changes.

Moreover, it is crucial that there is a continuous communication between students and both mentors (academic and the industrial), as well as between the two mentors themselves. The academic mentor must ensure that the academic part of the prepares the student for the tasks in the company. A mentor from the company should help the student to fit into the working environment as quickly and easily as possible and facilitate the accomplishment of the assigned tasks. Both mentors should assess the progress of the student and identify possible problems. At the same time, these personal contacts enable the representatives of universities and companies to get to know each other, which can provide the preconditions for broader cooperation.

The last but not the least observance was that providing companies with certain financial benefits would certainly give additional impetus to a wider acceptance of the model and its spreading throughout the country.

The overall impression was that providing companies with the opportunity to actively participate in the design of study programs of the higher education institutions, nominate mentors to work with students, select students who best suit the companies' needs would increase the interest of the companies to further support dual studies.

Higher education institutions recog-

nize that it is important to create new and attractive study programs for students that would allow them to easily find a job. Due to the fast changes in the societal-economic environment it is obvious that there is a mismatch between skills (especially soft skills) and knowledge acquired at higher education institutions and those required by employers.

Faculty representatives pointed out that a model of dual education in the system of higher education of Serbia should be flexible and responsive to fast changes in the technological developments, avoiding adaptation of study programs to an individual company's needs, but taking into account the broader needs of the companies in certain sectors. That is why one of the prerequisites for the successful implementation of dual study programs should be to form a pool of companies that are interested in hosting and training students. It is very important to identify priorities in the further development of higher education to create conditions for graduate students to acquire appropriate skills that are imperative in the labor market. In this regard, it is crucial to facilitate cooperation between the economy and institutions in order to secure education for professions of the future in the long run. The educational institutions should be recognized as modern and market-oriented leading educational institutions that provide students with the knowledge of highest quality and necessary for their working life.

Another important issue from the perspective of faculty is the valorization of the students' contribution to the company's performance. Although the benefits for students who receive training and gain experience is beyond doubt, their contribution to the company must also be valorized. It is obvious that students are not experienced full-time workers, but their contribution to the work processes in a company must also be assessed and remunerated. With regard to the forms of potential dual studies, they considered a dual study of minimum three years as more useful than just short term training, since it would enable both the company and the student to gain relevant feedback, build student's competences and get information on the latest achievements in the economy.

## Conclusions and recommendations

The activities of the Government of the Republic of Serbia and the MoESTD point to a great interest in starting the introduction of dual education into the higher education system of the Republic of Serbia. The basic goal of dual education is to bridge the gap between theoretical and practically acquired knowledge, and quickly adapt to changes in the globalized economy. In dual studies, practical training or work-based learning with the employer is an integral part of the study program, which involves signing contracts with an employer and studying at

two different locations – at the higher education institution and the company.

At times it is suggested that the established dual systems in countries such as Germany, Austria or Switzerland should be exported to other countries. It is evident both in research and in practice that there is no quick and easy way to transfer a dual system to other countries. Transferring a VET system from one country to another is not merely a matter of copying the original system, but much more a process of selection and adaptation by the potential recipient country.

It is definitely not possible to expect a single global concept of dual studies or taking one's model completely without taking into account the national and local context (the expected increase in the number of foreign companies – investors will certainly lead to establishing of dual study programs in higher education). Dual study programs will also bring significant benefits to companies, which will only increase their motivation to be involved in them.

Key benefits for companies are:

- establishing close cooperation with universities;
- making better insights into study programs organized by the university;
- insight into the students' potential and evaluation of future employees
- development of new and innovative ideas;

- providing support for the implementation of appropriate projects;
- development, i.e. creation of new study programs and projects together with universities.

Key benefits for universities:

- new and attractive study programs for students;
- providing students with the knowledge of highest quality and skills necessary for working;
- university teachers through their students gain feedback from the economy, get information on the latest achievements in the economy and thus can modernize their curricula

Key benefits for students:

- Dual studies increase students' competences, employability and their greater competitiveness in the labor market;
- Students have the opportunity to be up-to-date with the newest technologies;
- It provides the possibility of employment with an employer who is a partner in dual education;
- students contribute to the work processes in a company and receive adequate remuneration for their performance.

Regarding the accreditation of dual higher education courses, certain legal amendments are necessary. Since dual programs require a practical part of about 50 percent of the whole study time, there might be the need

to develop and accredit new/updated programs.

The adaptation of contracts to the new form of study might take a longer period on both the sides of higher education institutions and companies. Questions such as the categorization of students (employee, trainee and apprentice), their rights and duties, and their remuneration might lead to longer discussions in case the labor law is not flexible.

Higher education institutions need to revise rules and regulations and to adapt them for dual study students, since their study process will be different from "regular" students, questions surrounding repetition of courses, drop out and such need to be clarified.

The following tasks should be considered for the establishment of dual higher education programs and for the quality assurance of the programs:

- Attracting companies (definition of conditions and assessment of their eligibility as partner companies, their provision of qualified personnel, learning space and equipment),
- Revision and adaptation of curricula due to the shorter periods for academic studies, their coordination with learning content at companies, definition of ECTS points for both learning places, higher education institutions and companies,
- Attracting students (special marketing and promotion, schools, media etc.),

- Supervision of students' admission to the faculties and their respective placement in companies,
- Planning and coordinating work-based learning in companies,
- Additional consultations/trainings for lecturers teaching dual students,
- Assessment of students' performance during the practical periods (e.g. visits to companies, assessment of student reports) and of the location of training,
- Supervision of student graduation projects in cooperation with companies,
- Frequent meetings/workshops with partner companies, with their supervisors and leadership,
- Standardization of contracts (company – student, university – company, insurances),
- Organization of international exchanges,
- Development of a concept for quality assurance,
- To amend legislation to provide companies with incentives, i.e. tax exemptions or state subsidy.

The rich experience Serbia has in the establishment of dual education in VET should in any case be transferred into the follow up programs or projects that aim at upgrading the dual educational system to the tertiary level. The opening of the higher education system in Serbia to dual studies seems to be on its way even though details will be clearer only within the coming two years.

By Petya Velkova, Ralitsa Geshovksa, Vyara Kovacheva, Kiril Zhelyazkov, Martin Stoyanov and Mladen Mladenov

### ANALYSIS BEFORE

#### 1. Professionally oriented higher education

Professionally oriented higher education is still not introduced in the Bulgarian higher education system. However, dual education in high schools already exists. Usually, high school education covers two thematic directions: specialised, with theoretical subjects in the respective educational specialty; and general, including foreign languages, religion and sport. In class, students acquire theoretical knowledge and basic skills, whereas at the enterprise they develop practical skills. The classes have a duration from 8 to 12 hours a week. Teaching is organized in parts or in a block of activities. At the end of the school year, pupils receive a certificate which is also signed by the enterprise they worked at.

The experience accumulated throughout the period of implementation of dual education in the Bulgarian high school system as well as the support of the business organizations and certain higher education organizations (universities and colleges) is seen as a good ground to discuss with the public authorities and consequently introduce professionally oriented higher education study programs in higher education institutions.

**2. General opinion of the parties** (universities, business organizations and public authorities) involved in the discussion concerning the introduction of professionally oriented higher education in Bulgaria before the pilot activities under WP6:

- I Advantages of professionally oriented higher education for the students:
  - The student works in different positions at the enterprise and learns the work specifications in the various departments;
  - The student alternates between lessons and practical work and thus receives variety and motivation;
  - The knowledge gained at the university is complemented by real practical experience;
  - Students receive payment during their training.
- II Disadvantages of professionally oriented higher education for the students:
  - Students work on a more burdensome schedule because they have to reconcile working time with the necessary time to prepare for school lessons;

### III Advantages for the enterprises

- The enterprise monitors and gathers information about the theoretical and practical skills of the student;
- If the student is consequently employed in the enterprise, no further training is required for the work he/she will perform;
- The students have already gained comprehensive knowledge of the various workshops and departments of the enterprise.

### IV Disadvantages for the enterprises

- First and second year students have insufficient practical experience related to the knowledge gained at university;
- Training of students might be associated with substantial costs;
- The enterprise has no guarantee that the student will continue to work at the enterprise after graduation;
- There is an insufficient amount of students for certain industries.

### V Professionally oriented higher education and traineeship – similarities and differences

During the past years, a number of scientific research projects and European initiatives, including the EDU-LAB project, were dedicated to the concept of profes-

sionally oriented higher education and higher education as a combination between teaching in class and training at an enterprise. A strict difference should be made between the terms “professionally oriented higher education” and “traineeship during the higher education”. The typical feature of the professionally oriented higher education is the alternation of education within the higher education institution and working in an enterprise. Traineeship refers often to a voluntary or not strictly related engagement of the student in an enterprise that in most of the cases is not remunerated.

### VI Legal framework

At present, Bulgarian legislation offers no regulation for professionally oriented higher education. The main legislation acts that would require certain adjustments for introducing the regulation of this type of education are The Higher Education Act and The Labour Code. In the past years, the Bulgarian legislator has been approached with requests and proposals for creating rules for defining and implementing professionally oriented higher education in Bulgaria. Throughout the activities of the EDU-LAB project we have established that the Bulgarian legislator and the Ministry of Education would support a sound and effective proposal for the intro-

duction of professionally oriented higher education study programs and the legal framework defining their scope, specifications and implementation.

The analysis “after” is prepared as a report. The report presents an evaluation of the state of higher education in terms of the quality of professional training received by graduates and its relevance for labour market demand; it also discusses the need to introduce dual education into higher education, as seen through the optics of three different parties who all have a stake in the training of specialists for the labour market: **higher education institutions, business, and local authorities/administration.** The report is specifically focused on changes in the evaluation “after” interventions, activities and the work for dissemination of goals and results of the EDU-LAB project.

The report is based on the online questionnaire study results. The questionnaire included three groups of respondents: employers, including entrepreneurs who have taken part in project activities; representatives of higher education institutions, students and graduates; representatives of local government and local municipal administrations. The ratio of representatives in the three sectors: 52.9% business, 32.4% local government and municipal ad-

ministrations; 14.7% educational institutions.

The results show the presence of a serious problem regarding the quality of higher education in Bulgaria: a total of 96.1% of all respondents feel that the professional qualification of the higher education graduates in Bulgaria does not meet the needs of the labour market – whether partially, as is the more frequent case, or, in rarer cases, entirely, the existence of a discrepancy is a fact.

#### **Professionally oriented education: opinions and assessments**

1. Professional training is widely applied at present in secondary education, so it is necessary to introduce a greater amount of professionally oriented study programmes/dual training in the sphere of higher education as well: this is the opinion of 95.1% of the respondents
2. The future of professionally oriented education in Bulgaria is linked to in a more active commitment of local government in establishing this kind of education, an opinion shared by 91.2% of respondents.

3. The respondents emphasize the need for a broad awareness campaign among senior high school students and among Bulgarian society in general, with regard to the benefits of professionally oriented education.

#### **Basic conclusions**

1. The quality of professional training in the sphere of higher education at present does not correspond to labour market needs.
2. The introduction of the dual form of education into higher education is a way of overcoming this mismatch.
3. The analysis of the attitudes towards dual education “after” the intervention and activities under the EDU-LAB project shows growing awareness of the benefits of professionally oriented education and growing positive attitudes towards more professionally oriented study programmes in higher education. One of the pillar activities within WP6 was to organize a collaboration between representatives of the industry and higher education institutions in the sphere of professionally oriented higher education in Bulgaria. After several discussions, three pilot sectors were chosen, namely: Mechatronics and Automation, Chemical Industry and Tourism. It was argued that these sectors are important for the Bulgarian industrial development and competitiveness. Also, the

Bulgarian Industrial Association, a national employers’ organization, has serious experience in the assessment of the competencies needed for the competitiveness of Bulgarian companies. Following this, the next steps were taken:

- investigation of more than 100 companies, members of BIA, regarding their attitude towards the professionally oriented higher education, their desire and their possibilities to get involved in the EDU-LAB pilot activities;
  - In three companies from the sectors of Mechatronics, Chemistry and Tourism, three key positions were analyzed and key competencies were studied.
4. The stakeholders are committed to introducing professionally oriented education, as they have already undertaken concrete practical steps in this direction, for instance through the inclusion of business organizations and companies from into the education process. Work groups in Mechatronics and Automation, the Chemical Industry, and Tourism were established. The representatives from the related companies, branch organizations and professors from related universities have worked in close collaboration. They have passed through all the steps presented in the Policy Guide “How to start – implementing the new Danubian Governance Model”. The models developed are oriented to the main competencies of the

analyzed key positions in the pilot companies. The published results of their work and expertise were discussed, analyzed within the Bulgarian “Coordination point” and passed to the representatives of the partner universities and the Ministry of Education and Science to be used in their practice.

5. The local government feels less engaged in the education process and hence, less committed to establishing professionally oriented study programmes.
6. Stakeholders assess dual education positively and expect it will bridge the gap between the skills and qualifications of graduates and the labour market requirements; but this is in contrast with the lack of an adequate legal regulation of this form of education.
7. There is a clear imbalance between business expectations of higher education and labour market relevance on the one hand, and the real situation and the policy in both areas, on the other. The main obstacle met in our work is the procedure of accreditation. To overcome this situation the Higher Education Act obviously needs changes in this direction as well. These facts argued the decision to propose to the Ministry of Education and Science to establish joint Advisory Council for professionally oriented higher education in Bulgaria as a possibility to initiate the changes in the Higher Education Act and to facilitate practical

actions on the way to professionally oriented higher education in Bulgaria as soon as possible.

8. The surveys show the need for a broader awareness campaign regarding the nature and benefits of professionally oriented education; this need corresponds to the goals and tasks of the EDU-LAB project and confirms the usefulness of such projects and activities, which develop the participants’ institutional capacity and intensify their mutual dialogue.
9. It is necessary to further extend the intensive dialogue of the three groups – business, local administration and higher education, launched within EDU-LAB, in order to exert further positive pressure to amend and supplement the relevant legislative and regulatory base in Bulgaria: Higher Education Act, Labor Legislation, Vocational Education and Training Regulation, etc.

## OUTCOMES

### Initiation, establishment, institutionalization and functioning of a “Coordination Point” in Bulgaria

1. In-depth discussion on the implementation of EDU-LAB with a main emphasis on the practical application of the guidelines on the procedures for introducing the new way of managing the compliance of higher education with the requirements of the labour market with the participa-

tion of representatives of the Ministry of Education and Science of Bulgaria, the management of BIA and Municipality of Vratsa.

2. Presented and popularized the positive experience and “good practice” of dual training of higher education specialists for the needs of the Volkswagen plants in Slovakia.
3. Participation of over 30 representatives of three universities: Sofia University, University of Chemical Technology and Metallurgy, Technical University of Sofia, four sector organizations, companies from the mechatronics sector, chemical industry, tourism, services.
4. Presented results of the work of three expert groups with representatives of industry and higher schools in the field of mechatronics, chemical industry and tourism. Three pilot enterprises have been identified in which competencies of specialists in key positions were analysed and the frameworks for the provision of practical training courses have been proposed at the Technical University, Sofia, Sofia University and the Chemical Technology and Metallurgical university for acquiring the “Professional Bachelor” degree.
5. Suggested options for sustainable operation of the “Coordinating Point” after the project completion:

- Advisory Board to the Minister of Education and Science: proposal for its establishment;
  - Association/Academy for vocationally oriented higher education in Bulgaria;
6. Announcements for the seminar on BIA’s website and interview with Veronika Hanulova on the national “Darik Radio”.
  7. Printed and presented materials from the work of three expert groups, including proposals for the models of preparation of educational documents for vocationally oriented education for a Bachelor degree;
  8. Proposals for the possible implementation of the professionally oriented study for the representatives of the pilot companies into the practice of the Bulgarian Universities in 2019/2020 school year have been done and given to the representatives of the Universities, partners in EDU-LAB project in Bulgaria.

The pilot activities brought several tangible results such as revision or adaptation of higher education acts, creation of new professionally oriented study programs and building of coordination and discussion platforms with relevant national stakeholder groups.

However, the way leading to these achievements is different and unique for every country. As stated in the Serbian executive summary – *“It is definitely not possible to expect a single global concept of dual studies or taking one’s model completely without taking into account the national and local context.”*

As the starting points for pilot activities in these three pilot countries were different, the final project results differ as well, but at the same time similar conclusions were reached. Above all, an explicit need for professionally oriented study programs was pointed in all three countries. Based on the conducted surveys, all stakeholder groups including students are in favour of the creation of such study programs.

The following figures show how alarming the current situation is.

- Slovakia belongs to one of the higher education markets most heavily affected by “brain drain”. Each year, around 15% of all secondary level graduates leave the country for university studies

abroad. Only a minimum of these students returns after university graduation.

- High unemployment rate among youth in Serbia (31.9% in 2017), in particular among graduates of HEIs, has resulted in the fact that Serbia loses about 32,000 citizens per year, leaving the country mainly for work or professional development.
- The last available data in Serbia (from 2016) pointed out that 24.2% of tertiary graduates works in semi-skilled jobs (ISCO 4-9) (ETF, 2018).
- Total of 96.1% of all Bulgarian respondents of the pilot project survey feel that the professional qualification of the higher education graduates in Bulgaria does not meet the needs of the labour market.

Obstacles emerge on all sides but the process of aligning higher education to the labour market needs is in progress in every pilot country:

- The main obstacle in Bulgaria is the procedure of Accreditation.
- One of the most significant legal obstacles in Slovakia remains the change in tax law connected to stipends paid by employers to students – changes should bring relief to cost of employer and benefit net income of student.

- Under the present set up it is obvious, that only bigger size employers will have the capacity (HR, time, financial) to get involved in this kind of programs.
- An important element is the regional proximity of partners (school and employers).

Despite these obstacles some major results were achieved in all three countries:

1. The Slovak Accreditation body for university study programs defined specific accreditation criteria for professionally oriented bachelor's degree programs.
2. The first pilot study program was accredited in Slovakia in 2018 (Faculty of Mechanical Engineering at STU Bratislava with Volkswagen Slovakia).
3. Several professionally oriented study programs will start in the very near future:
  - in Bulgaria: "Proposals for the possible implementation of the professionally oriented study for the representatives of the pilot companies into the practice of the Bulgarian Universities in 2019/2020 academic year have been done and given to the representatives of the Universities, partners in EDU-LAB project in Bulgaria."
  - in Slovakia: "TUKE is creating a background for the accreditation of professionally oriented

study programs; Faculty of Manufacturing Technologies with a seat in Prešov is preparing accreditation of 3 such programs (Automotive Production Technologies, Computer Aided Manufacturing Technologies and Manufacturing Management).", starting from September 2019, in line with the already existing Criteria for Accreditation of Professional Oriented Bachelor Study Programs of Higher Education and in the framework of the newly published call "University for Practice" from the Slovak Ministry of Education, supported by non-repayable financial contribution.

4. Coordination Points / Stakeholder Platforms have been established:
 

In every pilot country was implemented successfully a coordination platform, whereat in many cases EDU-LAB brought together relevant stakeholders from business community with higher education institutions and public bodies for the first time in order to link closer HE study programs to labor market needs. And it is necessary to further extend this initiated intensive dialogue within triple helix and to invite additional parties involved in newly arisen topics (especially ministries of education, labour and economy as well as accreditation agencies).

The project partners from all three pilot countries had strong interests in bridging the gap between the stakeholder groups – employers, universities and policymakers, in order to strengthen the labour market relevance of higher education. The solid basis for such an achievement was also the structure of the project partnership itself, representing business organisations, employer associations, higher education institutions as well as local self-governments. Additionally, by building these new opportunities and establishing new approaches for a change of mindset on all stakeholder levels will help minimize the brain drain of young people from the Danube Region to abroad, as well as within particular countries from rural areas to cities. The above-described pilot projects and compiled lessons learned set an important foundation stone for developing further activities in the pilot countries, changing respective legislation as well as society mindset and created basis on knowledge and experience for implementing additional new professionally-oriented study programs extended to other HEI and business sectors.

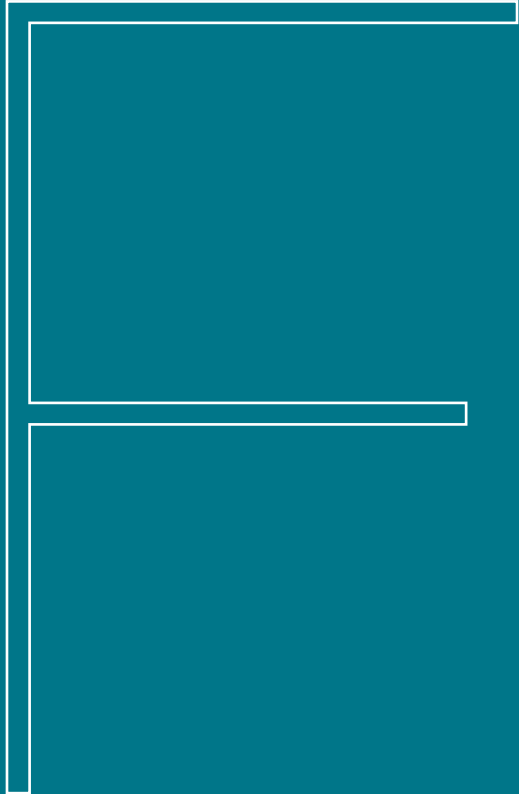
An advantage of such transnational project is that based on the pilot activities a compilation of lessons learned will provide a roadmap, a basis for a wide range of experiences, implementation best practices as well as transfer of knowledge to other project countries in the Danube Region.

## Recommendations and conclusions

The first important steps have been taken. Now it is time to take the next steps. New topics arise based on the hitherto experiences and lessons learned. In EDU-LAB the main focus laid on the triple helix structure and initialisation of their mutual cooperation. Now the time is ready for involving the fourth stakeholder group, the students. The main issue to be solved, for example in a possible follow-up project, is to raise the awareness among society and young people, even among secondary school graduates, about the usefulness and quality professionally oriented study programs. Any investment into motivation and awareness campaigns highlighting the nature and benefits of professionally oriented higher education will become an issue, besides all described challenges, either on a strategic, legislative or operational level.



# Summary



## SUMMARY

### EDU-LAB – NEW DANUBIAN GOVERNANCE IN LABOUR MARKET RELEVANCE OF HIGHER EDUCATION

#### Key facts:

Website:  
www.interreg-danube.eu/edu-lab

Overall aim:  
Develop professional chances for young people in the Danube Region by linking education to employment

Lead Partner:  
European Foundation for Education (EFE),  
Germany

27 Partners from 10 countries (Germany, Bulgaria, Croatia, Hungary, Romania, Slovakia, Slovenia, Bosnia and Herzegovina, Serbia, Belgium)

Project Duration:  
01/2017–06/2019

Overall budget:  
2,528,088.90 EUR  
(ERDF Contribution: 1,670,172.54 EUR,  
IPA Contribution: 478,703.00 EUR)

#### Short description:

EDU-LAB: BETTER CHANCES FOR YOUNG PEOPLE

The aim of EDU-LAB was to improve the professional chances of young people in the Danube Region. The starting point for developing a new mindset was capacity development. EDU-LAB brought together partners from the higher education sector, business organizations, national public authorities and policy makers. This joint learning process included further actors from civil society.

27 partners from 10 countries cooperated for 2.5 years to link education to employment in a sustainable way by developing the New Danubian Governance Model, creating learning tools, conducting trainings and pilot activities. Finally, the Danubian Charter for Young Talents was signed by EDU-LAB partners and stakeholders with the goal to create a binding commitment.

#### Objectives:

Project Main Objective:  
· Improve institutional capacities to increase the labour market relevance of higher education in order to offer more young people the chance to study and work in the Danube Region

Project Specific Objectives:  
· Enhancing cooperation between business, higher education, public authorities and the civil society  
· Encouraging the development of Higher Education Law Amendments  
· Encouraging the creation of more professionally oriented study programmes

#### Project Partners:

Lead Partner:  
European Foundation for Education, Germany

ERDF Project Partners:  
· Technical University of Sofia, Bulgaria  
· Bulgarian Industrial Association, Bulgaria  
· Municipality of Vratsa, Bulgaria  
· Institute for the Study of Societies and Knowledge, Bulgarian Academy of Sciences, Bulgaria  
· Knowledge at Work Foundation, Croatia  
· VERN' University of Applied Sciences, Croatia  
· John von Neumann University, Hungary  
· German Business Club Transylvania, Romania  
· Lucian Blaga University of Sibiu, Romania  
· Technical University of Košice, Slovakia  
· German-Slovak Chamber of Industry and Commerce, Slovakia  
· Automotive Industry Association of the Slovak Republic, Slovakia  
· University of Maribor, Slovenia  
· Regional Development Agency of Northern Primorska Ltd. Nova Gorica, Slovenia

IPA Project Partners:  
· Mechanical Engineering Faculty (University of Sarajevo), Bosnia and Herzegovina  
· LiNK Mostar, Association for Entrepreneurship and Business LiNK, Bosnia and Herzegovina  
· Development Agency of the Una-Sana Canton, Bosnia and Herzegovina  
· Department for Development and International Projects of Zenica-Doboj Canton, Bosnia and Herzegovina  
· Institute Mihajlo Pupin, University of Belgrade, Serbia  
· Chamber of Commerce and Industry of Serbia, Serbia

Associated Strategic Partners:  
· Ministry of Education, Science and Sport, Slovenia  
· Ministry of Science, Education and Sports, Croatia  
· Ministry of Human Capacities, Hungary

· Danube Rectors' Conference, Belgium  
· Municipality of Kecskemét, Hungary  
· Bulgarian Ministry of Education and Science  
· Ministry of Education, Science and Technological Development of Serbia

#### Project overview:

**Kick-off conference** in Stuttgart on the 14th of March 2017

The Kick-off event of EDU-LAB has taken place on 14th of March at the Neues Schloss in Stuttgart. The legal representatives of more than 20 project partners from 10 countries have signed the document entitled "Our commitment to develop chances for young people", symbolizing their long-term commitment to improve professional chances of young people in the Danube region by linking education to employment in a sustainable way.

Development of **e-learning courses** (see page 122) for stakeholders who want to take steps in order to better link higher education to employment. The e-learning courses show a variety of best practice examples from the Danube Region. By pointing out successful models for the alignment between higher educational offers and the needs of the business sector, stakeholders will be motivated to look for their own solutions and find out what legislative and institutional bottlenecks they need to overcome at national and regional levels.

The following e-learning ELCs were developed:  
· Encouraging the further development of Higher Education Acts  
· Fostering the creation of more professionally-oriented study programmes  
· Enhancing professional training (train the trainers) in companies  
· Strengthening the regional economic development

Development of the **New Danubian Governance Model** (see page 90)

Two transnational stakeholder workshops with more than 100 internal and external participants each were organized in 2017 and 2018 in Maribor to develop the New Danubian Governance Model, including the Policy guide "How to start –

Implementing the new Danubian Governance model" focusing on how to:

- incorporate a combination of theory and practice into tertiary education,
- develop a life-long learning system in a systematic and sustainable way,
- create law amendments that enabled incentivize the systematic cooperation between universities and companies in the field of teaching and research,
- boost university research and practice-oriented study programs through cooperation,
- establish systematic cooperation between higher education, business, state/local administration and the civil society

In 2018 and 2019 **pilot activities were conducted in Bulgaria, Serbia and Slovakia** to test the feasibility of the New Danubian Governance Model. In the framework of these activities among others, the accreditation system for professionally-oriented bachelor programs was designed in Slovakia and the 1st Slovakian professional bachelor program was launched in September 2018.

In 2018 and 2019 **stakeholder trainings, workshops and conferences were held** based on the developed e-learning courses to multiply the developed **New Danubian Governance Model**

In 2019 **"Danubian Charter for Young Talents"** (see page 11) was created to synthesize the recommendations developed and tested by the EDU-LAB partnership to be signed by EDU-LAB partners and stakeholders at the final EDU-LAB event in May 2019 in Zagreb as a symbolic declaration of the long-term commitment to the joint goal: offering better chances to young people in the Danube Region through linking education to employment

# Timeline

January 2017

**Partnership Agreement**



14 March 2017

**EDU-LAB Kick-off and 1st Steering Committee Meeting, Stuttgart**

15 March 2017

**Partner meeting, Stuttgart**

31 May 2017

**Partner meeting and stakeholder event, Belgrade – Learning tools developed**

14–15 September 2017

**Stakeholder meeting, Maribor**

18 October 2017

**EUSDR Annual Forum Budapest**

15 November 2017

**2nd Steering Committee Meeting, Belgrade**

16 November 2017

**Partner Meeting, Belgrade**

16 November 2017

**Pilot activities kick-off, Belgrade**

25 January 2018

**Maribor – The New Danubian Governance Model is developed**

23–25 April 2018

**3rd Steering Committee Meeting and Partner Meeting in Vratsa**

27 June 2018

**Stakeholder training event in Kecskemét**

9 October 2018

**Conference on professionally oriented study programmes in Bratislava – Accreditation and launching of the first professional bachelor program**

5 December 2018

**Stakeholder training, Kecskemét**

7-8 November

**Capitalization Meeting, 4th Steering Committee Meeting and Partner Meeting, Bratislava**

18-19 October 2018

**7th Annual Forum of the EU Strategy for the Danube Region in Sofia**

16 October 2018

**EDU-LAB meeting at Technical University Sofia**

15 May 2019

**5th Steering Committee Meeting**

16-17 May 2019

**Final conference, Zagreb – Signing of the Danubian Charter**



2017

2018

2019

14 March  
Kick-off and  
1st Steering  
Committee  
Meeting,  
Stuttgart



14-15 September  
Stakeholder  
Workshop,  
Maribor



15 March  
Partner Meeting,  
Stuttgart



18-19 October  
Capitalization  
Workshop at  
EUSDR Annual  
Forum,  
Budapest



31 May  
Stakeholder  
Workshop and  
Partner Meeting,  
Belgrade



15-16 November  
2nd Steering  
Committee  
Meeting  
and Partner  
Meeting,  
Belgrade



16 November  
Pilot Activities:  
Kick-off,  
Belgrade



27 June  
Stakeholder  
training event,  
Kecskemét



2018

25–26 January  
Stakeholder  
Seminar and  
Workshop,  
Maribor



9 October  
Conference on  
Professionally-  
oriented Higher  
Education,  
Bratislava



23–25 April  
3rd Steering  
Committee  
Meeting and  
Partner Meeting,  
Vratsa



16 October  
Working  
meeting, Sofia



18–19 October  
Capitalization  
Activity at  
EUSDR Annual  
Forum, Sofia



2019

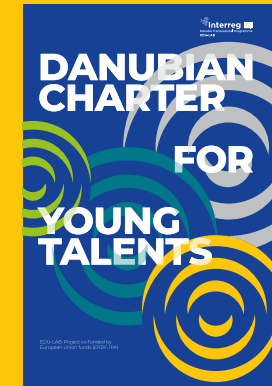
3 April  
Capitalization  
activity at  
EUSDR Consul-  
tation, Stuttgart



7–8 November  
4th Steering  
Committee  
Meeting and  
partner meet-  
ing, Bratislava



15–17 May  
Final Confer-  
ence, 5th  
Steering Com-  
mittee Meeting  
and Capitaliza-  
tion Meeting,  
Zagreb



5 December  
International  
Conference on  
dual type higher  
education and  
Stakeholder  
training event,  
Kecskemét



## Imprint

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