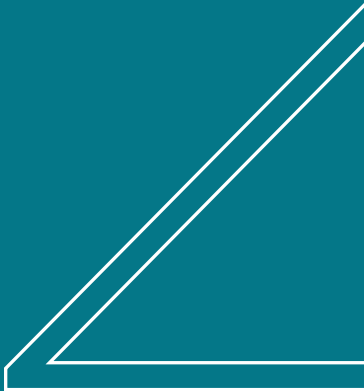


# Slovakia

By Barbara Plachá and Monika Fehérová,  
German-Slovak Chamber of Commerce and Industry



## 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 \***

<b>BUSINESS COMMUNITY</b>	<b>HIGHER EDUCATION INSTITUTIONS</b>	<b>ENVIRONMENT</b>
<p>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).</p>	<p>The university system needs a reform that will produce more bachelors for the labor market</p>	<p>The space for professional bachelor's programs is created in legislation.</p>
<p>High demand in the professional sector on STEM graduates – technical and engineering majors, in part natural sciences and IT graduate profiles.</p>	<p>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.</p>	<p>The accreditation of new bachelor's programs has no tradition and precedent.</p>
<p>The business community is ready to participate in the creation and implementation of study programs.</p>	<p>There is no relevant staffing for the new programs at universities (with capacity to introduce new content and ways of teaching).</p>	<p>Political representation, nor executives show actively support for this change.</p>

\*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.

<b>BUSINESS COMMUNITY</b>	<b>HIGHER EDUCATION INSTITUTIONS</b>	<b>ENVIRONMENT</b>
<p>The business community does not communicate unequivocally willingness to participate in financing programs and related changes.</p>	<p>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.</p>	<p>There is no communication campaign to promote this change.</p>
<p>Across the business community, it is challenging to reach agreements, consensus and collaboration.</p>	<p>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.</p>	<p>Public opinion is still set to prefer the so called "full higher education completion" (which means the gain a Masters degree).</p>
<p>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).</p>	<p>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.</p>	

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.

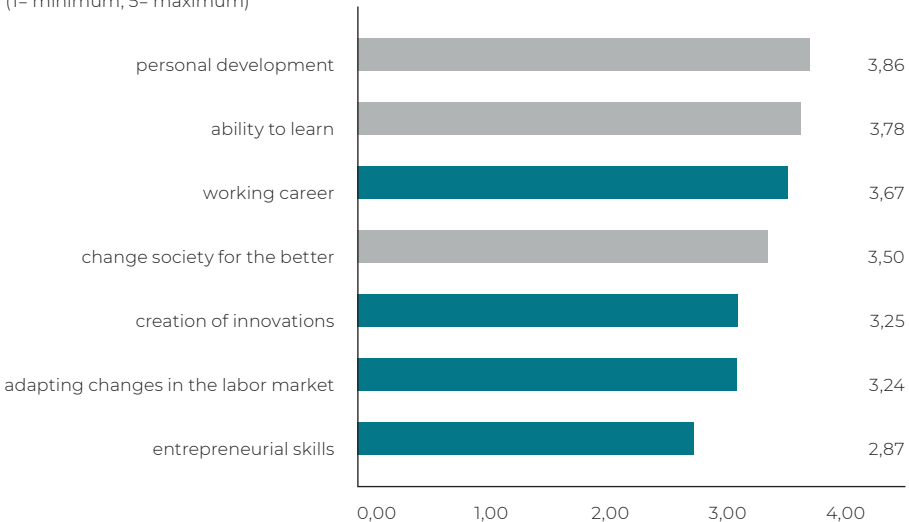
### Summary of feedback on implemented pilot – professionally oriented bachelor’s degree study program

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

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

(1= minimum, 5= maximum)



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.



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 taxes.

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.