MEASUREMENT OF COMPANIES' SATISFACTION WITH GIZ-SUPPORTED PROFILES WITH ELEMENTS OF DUAL EDUCATION

CEVES, Belgrade, October 2019

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LIST OF ABBREVIATIONS

BMZ – German Federal Ministry for Economic Cooperation and Development

CEVES – Center for advanced economic studies

EU 28 – EU member states

F2F – Face to face interviews

FDI – Foreign direct investment

GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH

NMS – New Member States of the EU

SBRA – Serbian Business Registers Agency

SORS – Statistics Office of the Republic of Serbia

VET – Vocational and educational training

WBL – Work-based learning

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1. INTRODUCTION

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has implemented the project "Reform of Vocational Education and Training in Serbia" from April 2013 to December 2019. The first phase of the project (April 2013 – December 2015) had the goal to provide preconditions for cooperative education in technical profiles with a focus on market needs. The second project phase (January 2016-December 2019), building up on the results of the first phase, set a goal to improve the offer for inclusive demand-oriented cooperative training in technical professions as part of the formal Serbian VET system.

The focus was put on 3-year educational profiles in the field of mechanical and electrical engineering, later supplemented with support to the textile sector. The project, jointly with its main partner the Ministry of Education, Science and Technological Development, defined core elements which would provide preconditions to encourage companies to take part in cooperative education which for the first time was introducing elements of dual education adopted to complement and blend in with the existing education system and socio-economic conditions in Serbia. The elements of the cooperative model were: close cooperation between schools and companies, modernization of educational profiles, adjustment of the law and regulatory framework, defining the role of partners and strengthening capacities of school headmasters, teachers, company instructors, Serbian Chamber of Commerce and other national actors. The goal was to increase the employability of school graduates.

The first generation of students enrolled in September 2014 in three profiles which were modernized and implemented according to the new, cooperative education model. Those profiles where locksmith-welder, industrial mechanic and electrician. The focus of the cooperative model of education was increased proportion and better quality of the work-based learning which takes place in the companies. In the second year of VET school students spend two days per week and in the third year three days per week on work-based learning in the company that cooperates with the school.

The first round of measuring companies' satisfaction with the GIZ supported approach was conducted in 2017. The obtained results of the first survey helped in further developing the cooperative model by introducing more elements of dual training. Based on these experiences, the Ministry of Education, Science and Technological Development initiated a Law on Dual Education, which came into force from September 2019.

As part of the monitoring obligations of the project towards BMZ, the purpose of this survey is to measure once more the companies' satisfaction with the GIZ supported approach and profiles for the period until September 2019. The survey was conducted from May until September 2019. The sample size included companies that were offering one or several of the GIZ supported educational profiles locksmith-welder, electrician or industrial mechanic and were in the project for at least 2 years. To the project team it was important that the companies already have

students in the third year of practical training, so that their development over time can also be assessed.

2.   METHODOLOGY

This document was created on the basis of online interviews with 70 companies, and 14 direct in-person interviews. Only the companies that had graduates in GIZ-supported profiles – electrician, locksmith-welder and industrial mechanic – were eligible for the survey.

The survey was conducted in two phases: (I) online polling of 70 companies; (II) face-to-face interviews (F2F) with 14 out of 70 companies from online polling, organized as a semi-structured questionnaire. The first phase provided preparatory part of the analysis, and the questions were divided in four segments:

1. General information about the company; with questions covering fields such as the year of foundation, form of ownership or number of employees, etc;
2. Experience with model with elements of dual education in their company and overview of practices in the company; with questions covering fields such as the name of the school with which the company cooperates, supported student profiles, type of support provided to the students, etc;
3. Companies' satisfaction with work-based learning (WBL) within the scope of the GIZ supported profiles; with the companies evaluating various aspects of satisfaction with the model with elements of dual education;
4. Companies' perception of perspective of the program and the students' employability.

The survey's second phase consisted of in-person interviews on the basis of a semi-structured questionnaire. The objective was to obtain information regarding the costs, benefits and overall satisfaction of implementation of work-based learning through a set of in-depth questions. CEVES arranged discussions with management, instructors and, where possible, with employees which were formerly engaged in a work-based learning programme in interviewed companies.

Questionnaires in both survey phases also featured questions requesting the interviewees to give their assessment of various practical instruction's aspects (how they would mark the cooperation with the school, students' performance, etc.). A part of questions was closed on a 1-to-6, 1-to-5 and 1-to-4 sliding scale, with 1 having represented the highest mark ("very satisfied").

2.1.   Description of the set of interviewed businesses

CEVES used a list of 113 companies that provide WBL for GIZ-supported profiles: locksmith-welder, industrial mechanic and electrician. In the first phase, all companies were contacted, of which 70 returned completed online interviews (69%). The highest response rate

was recorded in companies cooperating with high schools in Vlasotince, Guča, Svilajnac and Aranđelovac (80%), while the lowest rates were recorded with companies cooperating with schools in Obrenovac (44%). Vladičin Han is considered an exception because it has only one cooperating company, so the response rate was 100%. In absolute terms, the highest number of responses were collected from companies located in Niš and its surrounding area (10), Subotica (9), Vlasotince and Kragujevac (8 each), while there were only 3 companies in Sremska Mitrovica and Kraljevo each, and merely 2 in Inđija.

The companies interviewed in the first phase currently train 423 students in GIZ-supported profiles. The interviewed companies employed a total of 15 thousand persons (according to the Serbian Business Registers Agency (SBRA) database from 2016), while the interviews reveal that they currently have 423 students in work-based learning. Most students are being trained for occupations of locksmith-welder (48%) and industrial mechanics (40%), while only a few are trained for the electrician profile (12%). Out of these students, female students form a tiny minority of 3% or 12 in total.

Most students are trained in domestic private and foreign, medium and large companies, in the manufacturing sector. Most students (48%) are being trained in domestic private companies, while somewhat fewer (44%) in FDIs, and a minority being trained in state-owned enterprises (9%). According to company size, 82% of students are located in medium and large companies, 15% in small and 3% in micro. Sector-wise, a significant majority (85%) of students are trained in manufacturing enterprises, such as manufacture of tools, metal structures or machinery for food.

Overview by location of highschool - Phase 1	Companies part. in online interviews	Total students currently in WBL	Foreign owned companies	State owned companies	Domestic private owned companies	Micro companies (<10 workers)	Small companies (<50 workers)	Medium companies (<250 workers)	Large companies (>250 workers)	Number of electricians	Number of locksmith welders	Number of industrial mechanics
Niš	10	44	2	1	7	2	6	1	1	25	0	19
Subotica	9	47	4	0	5	0	3	2	4	2	23	22
Kragujevac	8	38	5	0	3	0	0	6	2	0	38	0
Vlasotince	8	43	3	2	3	1	1	3	3	0	8	35
Beograd-Novi Beograd	5	27	0	1	4	2	2	1	0	0	19	8
Pećinci	5	56	3	0	2	0	2	2	1	22	0	34
Aranđelovac	4	28	0	0	4	0	0	2	2	0	16	12
Beograd- Obrenovac	4	22	0	1	3	0	1	2	1	2	20	0
Guča	4	36	0	0	4	0	1	3	0	0	36	0
Svilajnac	4	30	1	1	2	0	1	2	1	0	14	16
Kraljevo	3	22	0	0	3	0	1	1	1	0	22	0
Sremska Mitrovica	3	8	2	0	1	0	1	1	1	0	8	0
Inđija	2	8	1	0	1	0	0	1	1	0	0	8
Vladičin Han	1	14	1	0	0	0	0	0	1	0	0	14
Total	**70**	**423**	**22**	**6**	**42**	**5**	**19**	**27**	**19**	**51**	**204**	**168**

Table 1. General overview of responses from companies in online (first) phase of research
(Source: CEVES' interviews with companies – online round of interviews)

Out of these 70 companies, CEVES selected 14 (20%) for in-depth face-to-face interviews (F2F). The selection criteria were the following:

- **Educational profile of students on WBL –** three educational profiles: locksmith-welder, industrial mechanic and electrician
- **Region in which a given company operates –** in the first phase, CEVES contacted companies from 14 localities with a technical school. In the second phase, it selected companies from 5 geographically representative locations: Kragujevac, Niš, Šimanovci (Pećinci), Subotica and Vlasotince.
- **Company size[1]** – large, medium, small and micro companies
- **Company ownership[2]** – foreign-owned, domestic private ownership and state ownership

Educational profile: Most companies interviewed by CEVES organize WBL for the industrial mechanics profile (8 companies). Work-based learning for locksmith-welder is organized in 6 companies, mostly based in Kragujevac and Subotica and mostly foreign-owned. Another four

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[1] Number of formally employed persons defines the company size: micro companies (up to 9 employees), small company (from 10 to 49 employees); medium-sized company (from 50 to 249 employees), big company (250 or more employees).

[2] Share in the ownership structure exceeding 50%. E.g. a state-run company is any company in whose ownership structure the state holds a share in excess of 50%

companies organize WBL for the electrician profile, which is dominantly located in Šimanovci (Pećinci). It should be noted that some companies organize WBL for multiple profiles, thus the total number of profiles covered by the graph below exceeds 14 companies.
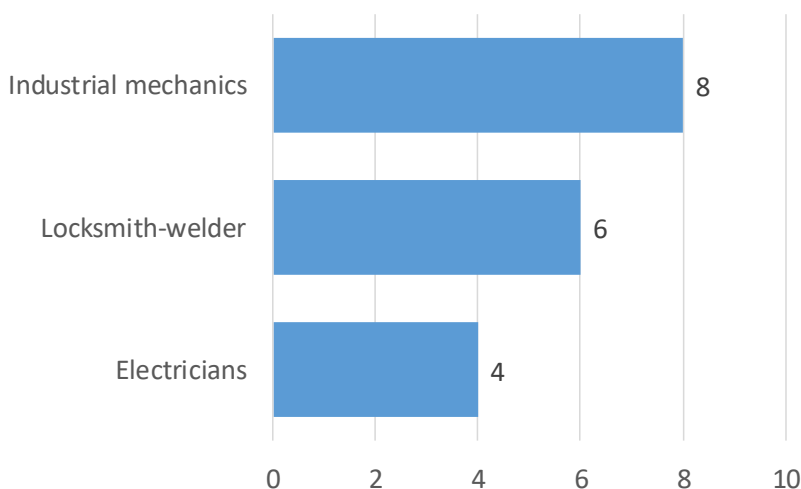
Graph 1. Distribution of companies by education profiles for which WBL is organised
(Source: CEVES' interviews with companies – F2F round of interviews)

Region: Interviewed companies are geographically distributed in 5 cities and their respective surrounding areas. For the purpose of simplifying the terminology, the analysis shall hereinafter refer to the territory comprising the city, its surrounding area, as well as the industrial zone therein, as the *region*. The companies are regionally connected through, above all, secondary schools where the students come from, so we have 6 secondary schools in the following regions:

1. **Subotica** - *Technical School "Ivan Sarić" Subotica*
2. **Kragujevac** – *Secondary Vocational School, Kragujevac*
3. **Niš** – *Machine School and Electrotechnical School, Niš*
4. **Pećinci** – *Technical School "Milenko Verkic Nesa", Pećinci*
5. **Vlasotince** – *Technical School, Vlasotince*

Graph 2. Interviewed companies by regions
(Source: CEVES' interviews with companies – F2F round of interviews)

The number of students is related to the company's capacity (size). Two thirds of students were selected in large firms, nearly a third of students were in middle-sized enterprises, while the residual was in small and micro companies. The number of firms and students is not evenly distributed to regions. The graph below shows the number of students according to the regions and ownership of the companies.
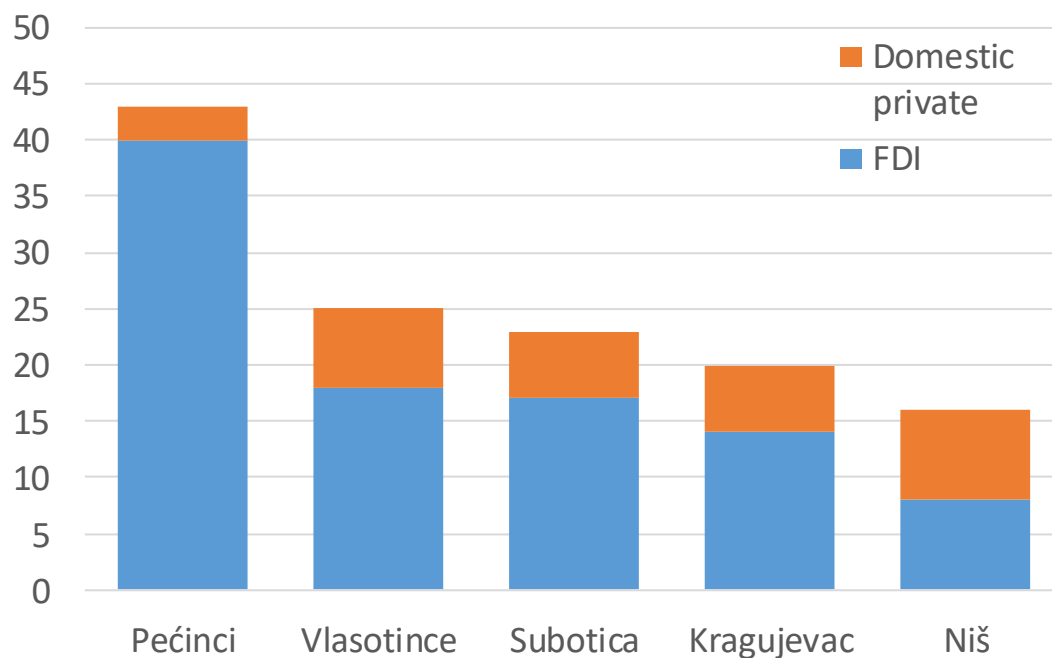
Graph 3. The distribution of students by regions and company ownership
(Source: CEVES' interviews with companies – online round of interviews)

3. IMPLEMENTATION OF THE MODEL WITH ELEMENTS OF DUAL EDUCATION WITH THE SUPPORT OF THE PROJECT

WBL is based upon curriculum, provided by schools. Students attend WBL part time – as a part of regular curriculum. Their activity is guided and tracked by a participating company – employed instructors, who communicate with the school – employed coordinators.

WBL is organized in line with the curriculum, provided to companies by schools. Such a curriculum covers a wide range of competences within an educational profile. Hence, the companies are sometimes not able to ensure the entire WBL part of education at their premises. In such cases, the students perform part of the work-based learning within the company's training workshop or within the school's workshop. This is due to both the provided level of technological equipment and the company's attitude and its readiness to include the students in higher-risk work (e.g. locksmith-welder).

Half of the companies already had an experience in WBL even before the model with elements of dual education was introduced. These are largely companies formerly owned by the state, because of their long-standing tradition in cooperation with schools in applying the WBL. Such companies tend to modify their method and scope of the work-based learning. Another half of the companies (7 of them) have introduced the WBL in 2014/15 coinciding with the introduction of the model with elements of dual education.

WBL is organized in 2nd and 3rd year, 2-3 days per week, 6 hours per day. Within the profiles supported by GIZ, during the 3-year vocational education, the school applies full curriculum during the first year. During the second and third year, the WBL is conducted at the company's premises for two/three days a week, respectively, six hours each day. The interviewed companies had the instructors at their disposal, tasked to deliver WBL over 2-3 days a week, six hours a day, to a planned number of students. However, some companies report that WBL is organized in blocs, for 12 weeks in 2nd year and for 24 weeks in 3rd year. This can be challenging, as the students in this period practically work on challenges which were still not covered by theoretical part of curriculum in schools.

Some companies provide separate training workshops within their premises due to safety reasons. In some cases, parts of the curriculum cannot be realized within company premises, because necessary safety conditions cannot be provided. In such cases, companies organize separate classrooms within company premises, where students can be taught in a controlled environment.

The instructor, in cooperation with a coordinator for WBL, is tasked with the realization of WBL. The instructor organizes the work-based learning for each student, rotates the students to various positions pursuant to the plan for realization of WBL, and assigns the students to experienced technicians for work or, in some cases, s/he instructs the students personally. The

instructor keeps track of the students' achievements and development throughout the WBL and partakes in their assessment together with the coordinator.

Instructors are company employees who, in addition to their regular work assignments, also engage in WBL activities. Instructors are selected from the ranks of the company, and in most cases, they undergo an instructor training programme (12 of them). They are in many cases in charge of communication with the cooperating school, and its teaching staff, and they coordinate and organise the WBL classes at the company's premises. Instructors are never specifically employed to work only on tasks directly related to the WBL, but they work on these tasks in addition to their regular and basic job duties. Communication with students and schools takes at least 30% of their time.

3.1. Curricula used in realization of work-based learning

Less than half of the companies have more or less significant influence on the operationalization of the curriculum. The teachers provide most companies with the general curriculum, which is then operationalized to better suit the companies' needs. The degree of the companies' participation in preparing an operationalized plan and curriculum varies. This means that cooperation between schools and companies is not equally distributed – 54% of interviewed companies were provided with a pre-defined curriculum, while 38% of interviewed companies had a significant influence on the program, as shown in Graph 5.
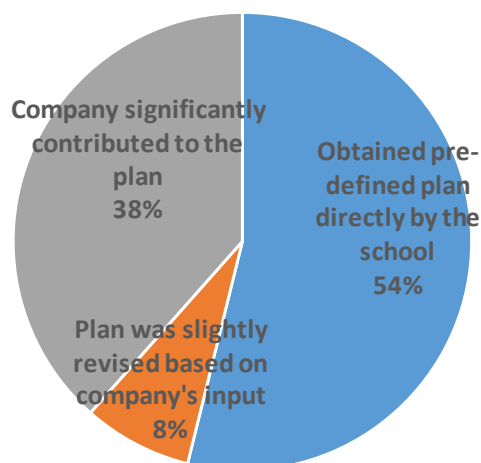
Graph 4. How companies and schools cooperate on question of curricula (number of companies)
(Source: CEVES' interviews with companies – F2F round of interviews)

3.2. Harmonizing theory and work-based learning program

Connection between practice and theory is tight but may be improved. The interviewed companies qualitatively estimated the levels of harmonization between the theory (provided by schools) and WBL (provided by companies) as mediocre. While the theoretical basis that the

students adopt in school is somewhat connected to the practical needs of companies, many of the interviewed firms claim that there is room for improvement. 6 out of 14 interviewed companies claim that theoretical underpinnings in the Year 1 are fairly modest and do not provide sufficient basis needed for the WBL in Years 2 and 3. Very often the theoretical underpinnings are deemed as overly general and difficult to apply in practice – this seems to be especially the case in the electrician profile. For instance, a major foreign owned company claims that only a third of school's curriculum for the electrician profile is practically applicable in the company. In case of industrial mechanic, some companies claim that theoretical underpinning in the domain of knowledge of nature of materials may be improved.

3.3. Forms of realization of work-based learning in companies and students' inclusion in production process

Safety goes first in all companies, and safety trainings precede WBL. The work-based learning in companies begins with the students undergoing a safety training first, and they are provided with the safety gear. Then, the students are either sent directly to production plants where they receive further training and where they observe the production process (like in the case of industrial mechanics, who are placed from the outset in production halls), or they spend some time first in workshops and specially equipped in-company training centres, before being sent to production facilities.

Inclusion of students in WBL varies and increases over time. In the production facilities, education consists of the following phases: familiarizing the students with the production process, tools, machinery and apparatuses; observing the production process and skilled workers' demonstrations; performing simple tasks; and finally, independent work. The maturation of students towards independent work may significantly vary, based on sensitivity of a company to safety concerns, but also nature and complexity of work. In some cases, the students do not reach such stadium, which is especially the case in more complex profiles, such as the locksmith-welder profile. While attending company-based learning classes, students are most often not included individually, or directly, in the company's production process.

At first, students often merely observe the production process. The companies assessed students' competencies, at the beginning of work-based learning at their premises, as insufficient. Hence the students are only observers at first. In the case of profiles with higher probability of mistake and production of damaged products, like locksmiths-welders, longer period of time is needed before the students join the production process. Even then, students are given simpler tasks in order to avoid unjustified costs and risks.

WBL is seemingly a good starting point towards reaching a fully developed skill set for an independent work. The companies point out most often that the WBL is an excellent start, but not enough in itself for the students to join the production process on equal footing with other company employees after they finish education. While the training lasts throughout 2nd and 3rd year, for two or three days a week, reaching a full skillset needed for working independently as

electrician, locksmith-welder or industrial mechanic, takes more time. In most of interviewed companies, the interlocutors estimated that at least one year of continuous work upon graduation is needed to fully develop a skillset sufficient for independent work. Even then, such skillset is not perceived as sufficient for individual work in more demanding or complex tasks. Nevertheless, all the interviewed companies claim that employability of the students who underwent a WBL programme significantly increased, as compared to the students who were not included in a systematic WBL – as many as 85% of interviewed companies claim that the employability has *significantly* improved.

3.4.   WBL on machines in production

Most students are directly involved in work on machinery. 70% of the students in WBL are provided the opportunity to work directly on the machinery – although, in most cases, only for limited time and on simple tasks. It is mostly visible in the locksmith-welder profile, where their involvement is limited by safety concerns. The remainder of students (or 30%) are not directly involved in operating the machinery but support the work process on certain machines or just watch the process. The interviews, however, do show that inclusion of students in the working process increases over time.

Although in most companies, students are involved in the production process, most of them are given only simple tasks in the beginning. The approach, however, differs for different educational profiles. Complexity of the machinery as well as adequate safety measures in the production environment, dictate the mode and time of machine operation. The students usually perform preparatory work and assist senior craftsmen. In cases when they operate the machinery directly, they first perform simpler tasks before moving on to more complex operations. The move to the final stage of training also depends on the interest each student has, and on the senior craftsman's willingness to give him/her a chance to work independently. This is an expected result, as the previous section shows that it takes at least one year of continuous work to reach full working capacity to operate in the observed profiles.
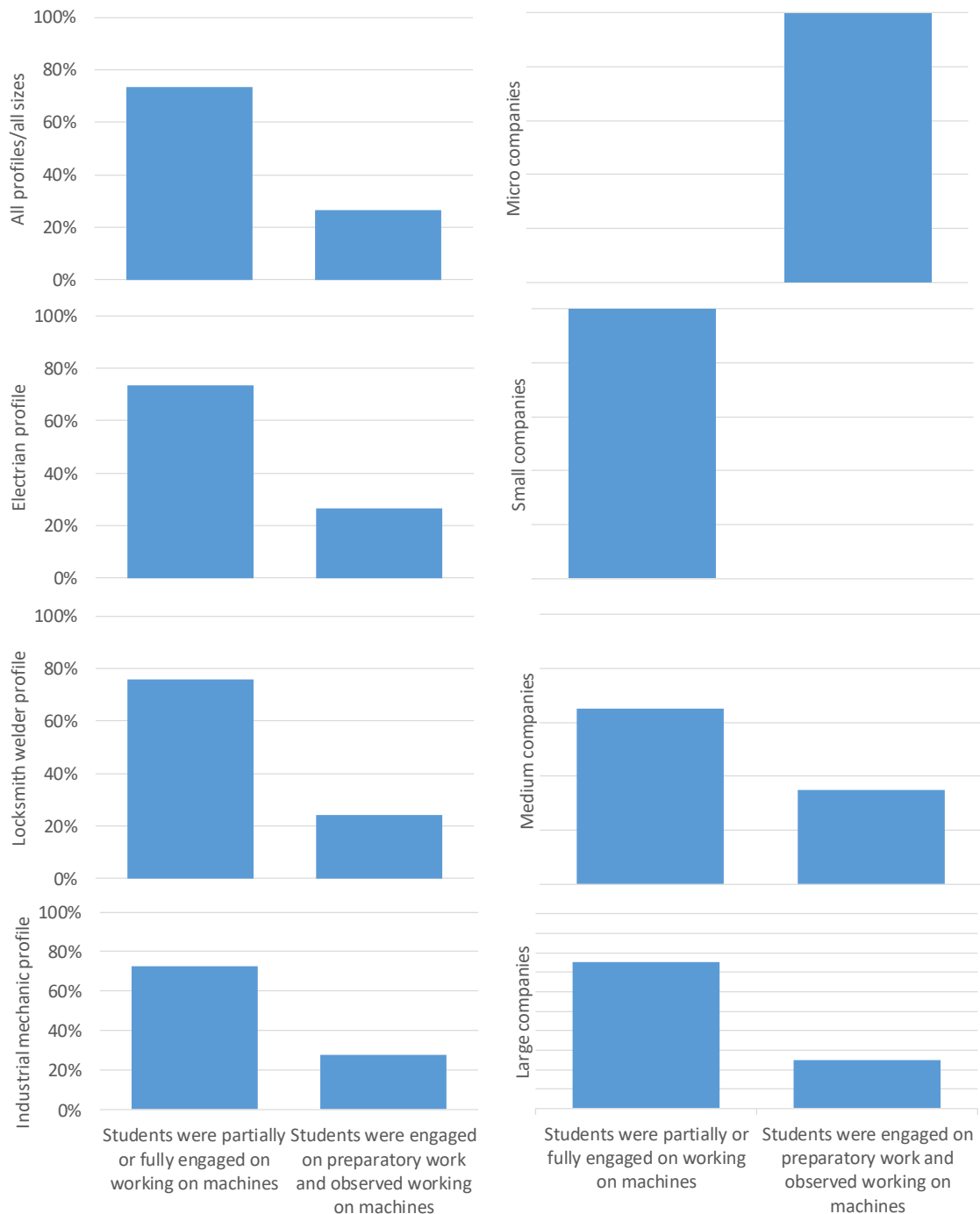
Graph 5. Students' inclusion in work with machinery, according to education profile and company size
(Source: CEVES' interviews with companies – F2F round of interviews)

# 4. COMPANY SATISFACTION WITH GIZ SUPPORTED PROFILES

Participating companies are generally satisfied with results so far. For companies, WBL is a platform for creation of new labour force which suits their specificities, and its success relies on open communication with schools.

The companies are generally satisfied with achieved results. The interviewed interlocutors generally express satisfaction with the achieved results, and satisfaction with what the educational model with elements of dual education program provides to both firms and students. Indeed, approx. 85% of the 70 companies interviewed in the first-round of research report to be mostly satisfied (3), satisfied (2) or completely satisfied (1) across all categories of satisfaction – DE program satisfaction, satisfaction with modern profiles and perception about modernized profiles increasing employability of students. Moreover, no company is completely dissatisfied (6). Irrespective of the costs of conducting WBL, companies see the benefits which exceed the expenditures. Their satisfaction mostly comes from the fact that WBL increased available labour pool and the employability of students after the completed education, and for the company it shortened the time necessary for inception training of new employees.
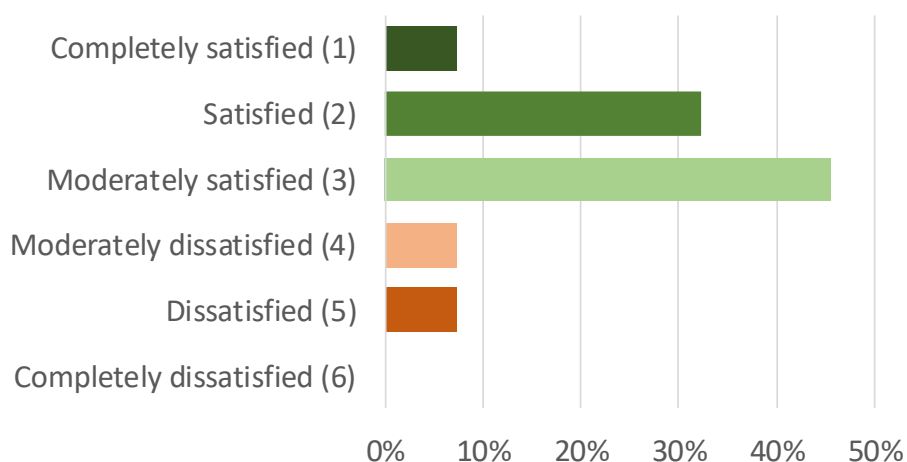
Graph 6. Satisfaction with model with elements of dual education– interviews in the first round
(Source: CEVES' interviews with companies – online round of interviews)

Companies hosting the locksmith-welder profile are satisfied the most. As for the satisfaction with particular programs, the highest satisfaction was recorded with programs for locksmith–welders, as the results of online interviews suggest. In this case, out of 38 firms which have this profile, 11% rated it with 1 (highest), 42% gave the 2 and 37% gave the 3. Industrial mechanic program is somewhat less satisfactory – with 3% of mark 1, 32% of mark 2 and 52% of mark 3. Electrician program is seemingly the least satisfactory – with no mark 1, 20% of mark 2 and 70% of mark 3.
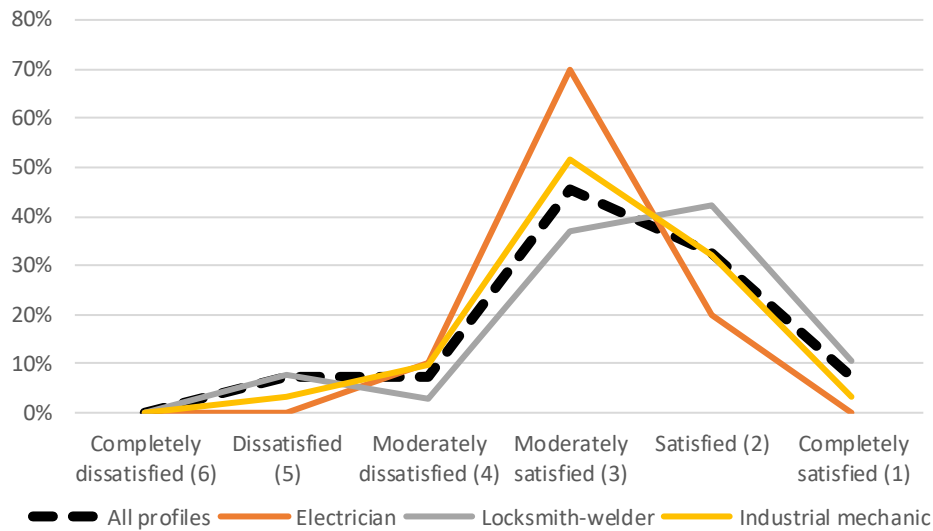
Graph 7. Satisfaction with model with elements of dual education – interviews in the first round: comparison between profiles
(Source: CEVES' interviews with companies – online round of interviews)

Overall satisfaction of companies has not significantly changed between surveys in 2017 and 2019. A direct comparison with results in the survey conducted in 2017 is not feasible in this domain, as the scale of satisfaction was made differently[3]**.** Although quantitative analysis of differences between the surveys is not plausible due to methodological considerations, we may conclude that the overall satisfaction of companies is not significantly altered – while 85% of companies in 2019 claim to be mostly satisfied, satisfied or completely satisfied, 94% of companies in 2017 claimed to be satisfied or partially satisfied.

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[3] With only three selectable answers: "Fully satisfied'', ''Partially satisfied'' and ''Unsatisfied''.

Interviewed companies claim that modernized profiles satisfy their needs. The companies interviewed in both rounds of research were in sum very satisfied with the way the modernized profiles satisfy their needs - nearly 90% of the companies interviewed in the online (1st) round of interviews claim to be satisfied, with only 10% being moderately or relatively dissatisfied.
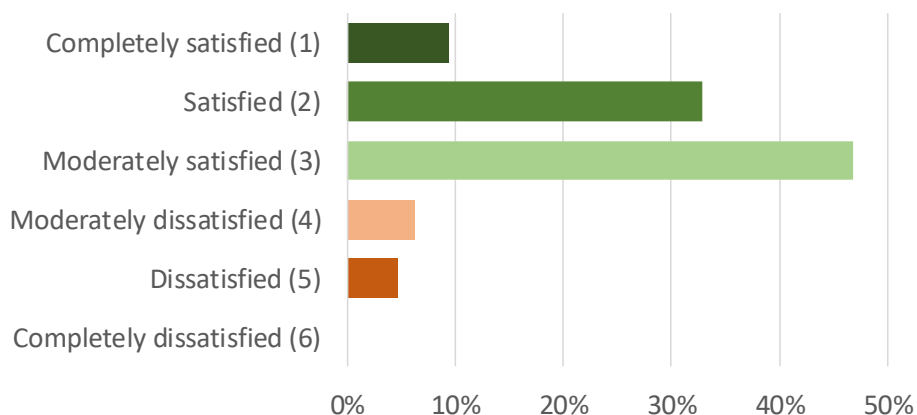
Graph 8. Satisfaction with profiles: do the modern profiles satisfy company's needs?
(Source: CEVES' interviews with companies – online round of interviews)

Companies' satisfaction on profile modernization increased between 2017 and 2019. When asked to comment on how the modern profiles satisfy companies' needs, the firms provided more favourable answers than they did in the 2017 assessment, as can be seen in the graph below. This may suggest that linkages between the companies and the schools participating in WBL are increasingly tight and that the communication between them is improving, which is a positive development.
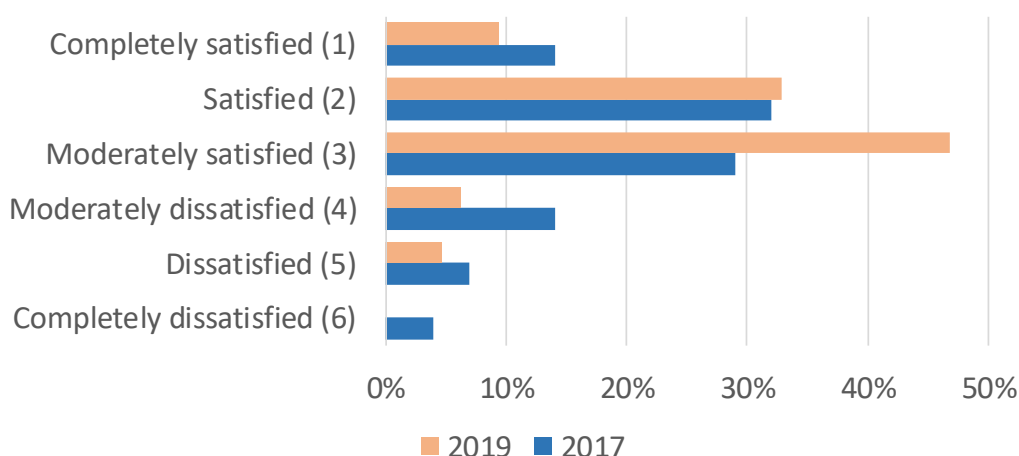
Graph 9. Satisfaction with profiles: do the modern profiles satisfy company's needs – 2017 vs 2019
(Source: CEVES' interviews with companies – online round of interviews)

Interviewed companies claim that employability of students that underwent work-based learning significantly improved. The companies interviewed in both rounds of research were generally very satisfied with improvements in employability of students. Almost 80% of the interviewed companies in the first-round estimate that employability of students significantly increased. Apart from relevant skills, they acquired the working culture, learned to respect the company work discipline and safety procedures. Companies emphasise that students achieved the basic level of competence. Experience gained through learning directly in the production process, knowledge of business relations within the company, respect of work discipline and occupational health and safety will result in decreasing the time needed for their full adaptation to the work process when they are emplo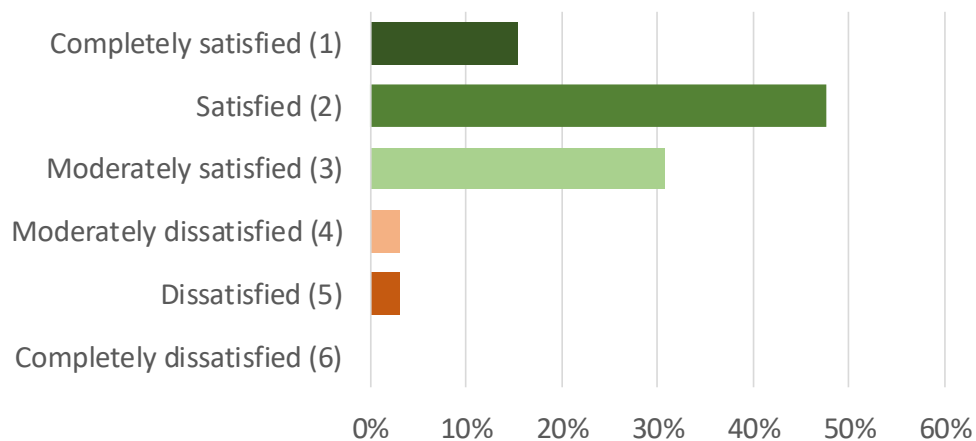yed. This is underlined by the fact that according to the research results from the online part of the study, the 70 companies interviewed in the first round employed 101 former students.

Graph 10. Satisfaction with employability of students
(Source: CEVES' interviews with companies – online round of interviews)

4.1. Motive for companies to participate

The primary motive for all interviewed companies to cooperate is to attract or to create new labour pool. Much of Serbia's territory is under adverse demographic pressure, in line with poor fertility and net negative migration. This is exacerbated in peripheral areas, such as eastern or south-eastern Serbia. This demographic picture is mirrored in companies' strategies: with the generational "changing of the guards" some firms expect to lose part of their staff, including some of their most senior craftsmen. In the dual education programme, the companies see an opportunity to find new staff, of good quality, enthusiastic, trained, and to enable the senior craftsmen to transfer their know-how to the new generation. Moreover, many companies stress how important it is to ''create'' workers with a skillset, culture and loyalty that fits their firm, right from the beginning of their careers. This said, for all the interviewed companies, primary motive was attraction of labour pool.

Social responsibility is a strong, albeit less frequent motive, for the companies to participate. The interviews also show that, although to a lesser extent, companies are interested in participating as means of showing their social responsibility towards local community. Four companies stated that, after attraction of additional labour, social responsibility is the second most important motive. Representatives of big foreign companies told us that their corporate global policy is to participate in this type of cooperation with schools and vocational practice, and that they follow the policy of their mother companies in this respect.

4.2. Companies' support to students and schools

Apart from operative costs, the companies hosting students often face hidden costs. Keeping track of all costs related to application of work-based learning is often difficult. The companies that do so, mainly identify the cost of used material (if students work in training rooms at company premises), while many companies – although not explicitly – point out the time of the more senior workers spent on working with the students. Although in this F2F interviews no company has mentioned it, we would point out that the firms are also subject to various operative costs, such as electricity, or amortization of used machinery.

Most interviewed companies do provide at least some kind of support to students or to schools. Most companies do provide some kind of support for the students, as the graph below shows. Apart from financial compensation[4], many companies provide students with transport or meals. Moreover, some participating schools received support in the form of more modern equipment, to enable them to better reflect in their workshops the company's modern technological requirements; while other companies provided donations, production material and the like.
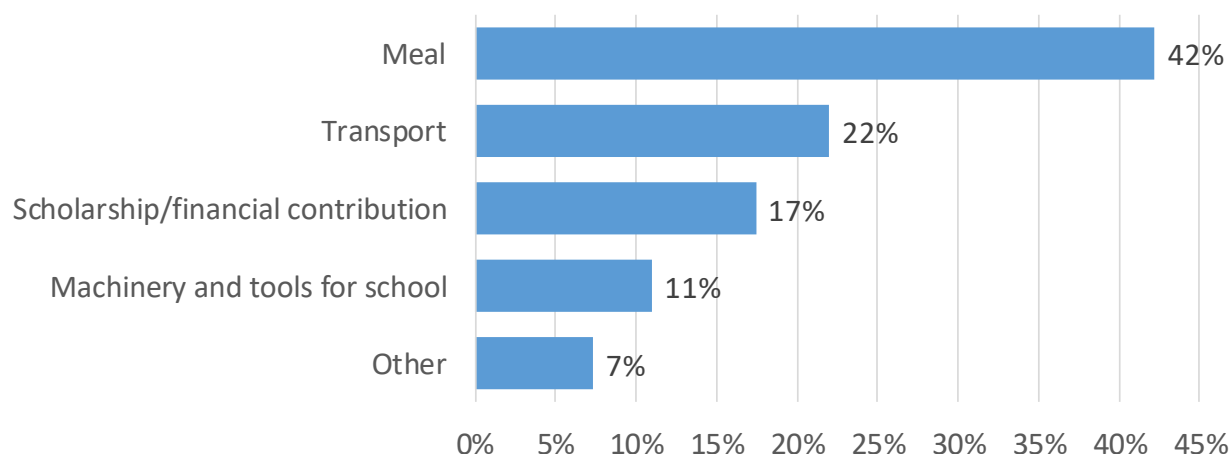
Graph 11. Number of companies that provided support for schools/students
(Source: CEVES' interviews with companies – F2F round of interviews)

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[4] Up until implementation of the Law on Dual Education in September 2019, financial compensation was voluntary, while since September 2019 it has become mandatory.

4.3. Companies' satisfaction with cooperation and communication with schools

Success of WBL requires good communication between schools and companies. This implies that companies and schools need to work in close cooperation, in order to apply a part of the school' curriculum by working in a company. Actual implementation of the schools' curriculum is adjusted to the needs and requirements of each school and individual company. In the course of interviewing, a conclusion was made that a successful cooperation resides on regular and open communication between a school and a firm.

Companies' management is highly satisfied with cooperation. An overwhelming majority of companies' management assess the cooperation and communication with highest marks. One company stated that: ''*relationship between company and school is based on a partnership, the school follows the needs of the industry, and proactively strives to change existing curriculum or even introduce new profiles''.* Another company indicated that: ''*meetings with the school's headmaster, pedagogue, professors and coordinators for work-based learning are organized at monthly level''.* Indeed, 78% of companies interviewed in the second round gave the highest mark when asked about communication with schools.

Companies' management usually discusses curriculum with the schools. Regular communication seems to be fruitful: in most – but not all – cases, schools adjust the curriculum or subjects for the final exam, based on companies' comments. On the other hand, the students' motivation, attendance and process of student selection are less discussed. One company stated that they discussed possible introduction of new profiles.

Instructors are satisfied with cooperation. Like the management, the instructors are highly satisfied with cooperation. Almost 65% of instructors gave the highest mark, when asked about communication with the schools. One instructor said that ''*professors in the local high school are eager to inform us on students' school performance''.* The instructors in most cases have regular communication with schools and have the possibility to sum up the experiences on working with particular students with school staff at the end of each year. Also, in some – but not all cases – the instructor state that they had the opportunity to attend the students' final exam in capacity of jury members.

Instructors are more concentrated on operative communication, such as one related to students' motivation. Students' motivation seems to be the most important topic of discussion between the schools and the instructors: instructors in 10 out of 14 interviewed companies in the second round of interviews claimed to have discussed students' motivation. Indeed, most companies cite that students are often difficult to motivate, while their attendance in some cases is challenging. This topic is much more discussed than others: only 5 companies' instructors report that they have discussed the curriculum, and the same number of companies' instructors have discussed the student selection process with schools.

School representatives seem to be most focused on formal questions. School representatives are mostly focused on monitoring the regular attendance by students, their progress in learning, and dealing with certain disciplinary problems with the engagement of the company, the students and their parents/guardians. The survey does not show if the schools used the opportunity for professional development of their teachers in the fields of technologies used in partner companies in order to improve the vocational training component which is conducted in school workshops.

Companies regularly summarize experiences with schools at the end of the school year. Approx. 45% of companies claim to have been regularly summarizing experiences with WBL at the end of the school year. These evaluations are largely informal and are comprised of an oral exchange of impressions. In most such cases, the companies' representatives took part in jury at final exams of some students.

4.4.   Selecting students for in-company vocational training

Selection method has often been arbitrary. Interviews show that in past practice there has been no uniform method of selection and distribution of students to the companies at the end of School Year 1. In many cases, separate systems are formed, based upon communication between schools and companies. Companies often state that it is of high importance to have a clear, transparent and a fair system of distribution of students to companies[5]. As an illustration, one company states that ''*it selects students who are good candidates, after consultations with the professors. Before the selection, students are taken for a tour around the factory, in order to be familiarized with all possibilities of work-based learning within the company''*.

The selection method often helps most successful companies attract the best students. The interviews show that students are more motivated to work for a well-established, foreign-owned companies. In some schools, the most prospective students are sent to the best-acknowledged companies, while leaving out less successful students to other companies.

Language barriers constitute significant challenges in some cases. As a special case, one of the observed high schools, located in a multi-ethnic region, organizes curriculum in two languages – one year in Serbian, and another in a language of a national minority. This complicates the process of selection and imposes language barriers – one interviewed former student in one of the visited companies, lacked basic knowledge of Serbian language.

4.5.   Changes and improvements of the model with elements of dual education from the perspective of companies

Schools often take into account the suggestions provided by the companies. Some companies have been providing suggestions for improvements in the curriculum or in the final

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[5] The rulebook on placement of students to work-based learning is in place since January 2019, in order to tackle this challenge

examination, in order to make these better suit the companies' needs. One company stated that the ''*school sends them the curriculum programmes and asks what can be included in the programme. It also communicates with us in respect of the subjects for the final exam – we help them choose subjects which can be done in company's facilities, so the students can do a part of the exam in our premises*''. In some cases – although it is far from a dominant case – schools change the curriculum at the request or suggestion of cooperating companies.

5. STUDENTS' PERFORMANCE

WBL has been successfully allowing students to acquire new skills, knowledge and work ethics, thus increasing their employability in a safe and organized manner.

Companies are highly satisfied by students' overall performance at the end of their training. At the end of the education of the whole generation for all three educational profiles, companies assess satisfaction with the results achieved by students. The question *"were you satisfied with the overall performance by students at the end of their vocational training"* was asked of instructors, who were in more direct communication with the students than the management. Of the total number of companies, instructors in 62% of companies are satisfied with the overall performance of the in-company training relative to incoming performance and motivation.
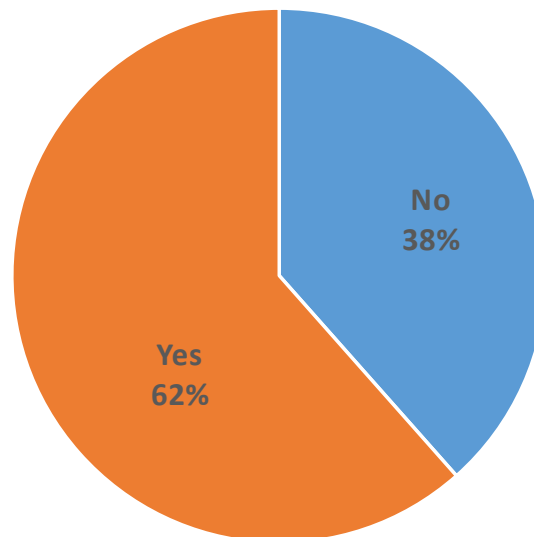
Graph 12. Satisfaction of instructors with students' performance at the end of vocational education
(Source: CEVES' interviews with companies – F2F round of interviews)

Instructors' satisfaction stems from students having mastered basic competences in a safe manner. Satisfaction of instructors with students' performance is most directly related to the fact that the students have mastered the basic competences planned for their educational profile. Almost all instructors state their satisfaction that the in-company training was conducted successfully and safely. Students acquired the basics for the relevant jobs, as preparation for their work in the company. This foundation is helpful in shortening and making more successfully the inception training that they would anyway need to start work-based learning in the company. Instructors state that they are especially satisfied with the results of those students who showed great interest.

Instructors generally think that the model with elements of dual education significantly contributed to overall performance of students. 85% of companies' instructors think that the WBL contributed significantly to students' performance (see graph below). It is noteworthy that responses from instructors who gave low marks reveal that there might be some additional and equally important factors in play. The key influencing factors are the students' motivation for the job (and thus for the in-company training), students' commitment to in-company training, and overall talent for the relevant job. For instance, instructors from one Niš-based company gave a mere 3 (second lowest grade), while also underlining students' being untidy, citing their irregular presence and low interest for the job, and lack of discipline and respect for hierarchy.
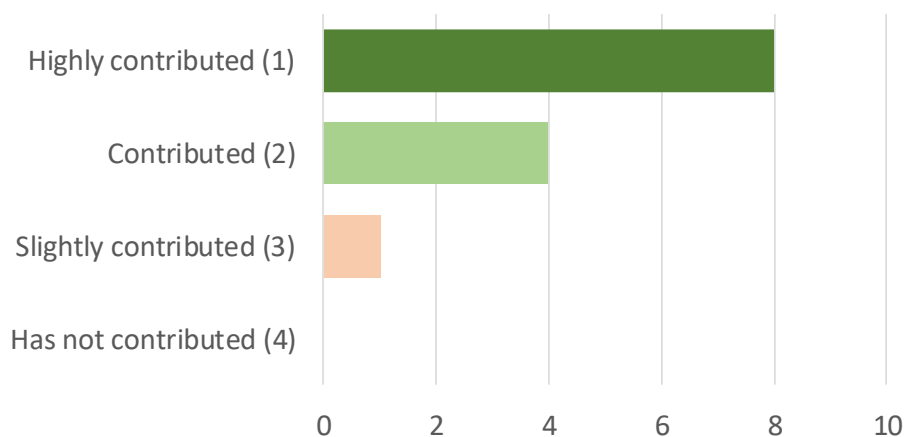
Graph 13. Assessment of contribution of WBL to overall students' performance
(Source: CEVES' interviews with companies – F2F round of interviews)

5.1. Aspects of in-company training which had an impact on students' performance

WBL contributes to skills and working ethics of students. One of the key results of in-company training was the opportunity for students to work in real work environment. Apart from qualifying them to perform similar technical jobs, this was an opportunity for young people to learn about a responsible approach to work, respecting work discipline, apply safety and health measures, understand the business relationships within the company, participate in the work together with masters and instructors. Almost all companies state that an important aspect of learning was for students to understand what it is going to be a part of a system. Through this practice they became part of the company, understanding the relationships within it, thus contributing to respecting procedures and hierarchy, regular attendance and work discipline. Students respect the existing discipline equally as regular workers. They learn how to be part of a team, how to work without causing delays in the process, and how important their role and contribution to the process is. Through their approach the masters and instructors, not only as trainers but also as educators, contribute to the students acquiring the skills and also maturing as persons.

Graph 14. Assessment of students' results by stated aspects (average mark)
(Source: CEVES' interviews with companies – F2F round of interviews)

Safety and respect for hierarchy of students are evaluated with high marks. All the above aspects were assessed by instructors with the highest ranks, with all average rankings (corrected by number of students per school) are higher than *2* (graph above). One of the requirements is the respect of safety and protection measures because it is clear that the companies are bound by the stringent working safety legislation. Companies ranked this with highest ranks. The situation is similar also in other aspects – such as respect for hierarchy – where instructors state that students are very well-mannered, they respect the company internal rules, and fit in well with the other employees.

However, discipline, attendance and motivation remain a challenge. On the other hand, many instructors across the observed companies gave relatively lower marks on students' attendance, interest in work and overall respect for working discipline. Students often do not show responsibility with respect to the specified time for in-company training. It is difficult to keep their attention, and to motivate them to work. Many companies claim that students often enrol to technical schools only for pure formalistic reasons – to obtain a diploma, although this motive is less pronounced in profiles such as locksmith-welder, which is a profession in high demand on the market. Many instructors argue that it is possible to counter such a situation by creating a handbook on how to deal with such challenges.

Students' motivation increases as the training progresses. On a more positive note, students' motivation clearly increased as the in-company training progressed, as the graph below suggests. Measured as average rank on the scale from 1 to 4 (where 4 is the most favourable), the average motivation at the start of program stood at 2.5, and it rose to 3.0 by the end of the program. Many instructors argue this may be the result of the students' natural process of maturing, but it can also be attributed to the student having a better understanding of the job, and also understanding the potential gains.
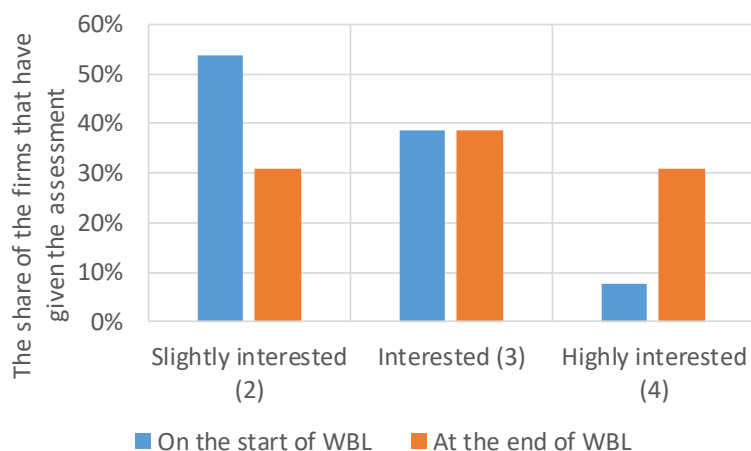
Graph 15. Students' motivation for WBL
(Source: CEVES' interviews with companies – F2F round of interviews)

Students are increasingly motivated largely due to increased employability. Higher likelihood of employment and creativity of the production process are stated as key factors influencing the motivation. The companies stated an additional factor: potentially higher earnings after employment in companies in Serbia, and also abroad. The financial compensation that the students receive during the in-company training is also a motivation factor. Students from socially vulnerable regions see this as an opportunity to improve their social status.
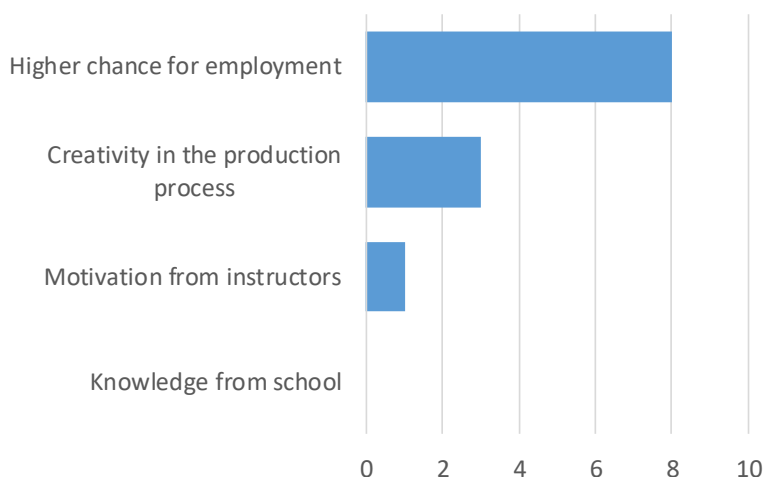
Graph 16. Factors influencing students' motivation
(Source: CEVES' interviews with companies – F2F round of interviews)

Theoretical education seems not to be fully successful in motivating students to work in production companies. On the other hand, it should be noted that none of the companies think that the knowledge acquired in schools has somewhat limited impact on students' motivation.

This insight is an indication that the education system is not sufficiently successful in motivating students to work in production companies.
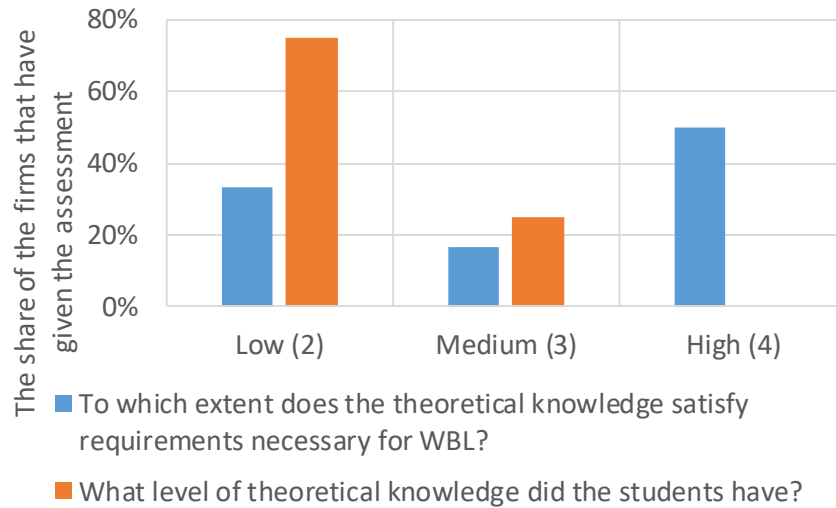
Graph 17. Assessment of theoretical knowledge of the students
(Source: CEVES' interviews with companies)

6. ROOM FOR IMPROVEMENT

Although companies have shown that the model with elements of dual education programme is promising, its implementation still has much room for improvement. These improvements, as seen from the perspective of companies, are grouped in the section below.

6.1. Students' motivation

Special effort should be invested in motivation and pedagogical approach to the young, who might sometimes exhibit some forms of problematic behaviour. Almost all interviewed companies cite students' motivation and lack of discipline as one of the most significant impediments to this programme. As a method of overcoming this issue, the instructors in the companies in many cases state that preparation of a handbook may be a useful tool.

6.2. Instructors

Companies cite the need to regulate the position of instructors within companies, improve the way they are selected, and provide training for more instructors in companies. Companies might have an employee engaged full time in work with students and manage the overall process of in-company training. Indeed, many companies have no procedure or working instruction intended for instructors' work with students, nor for selection of instructors. In many cases, this selection is purely arbitrary. Moreover, the instructors consecrate significant amount of regular time on work with students, which increases the workload, sometimes even above sustainable levels. Although almost all instructors seem to have been trained by Chamber of commerce and GIZ, these trainings are seemingly very short, and thus the ''training of trainers'' program could be additionally deepened and / or prolonged.

6.3. Enrolment and selection of students

The issue of motivation of students enrolled in these educational profiles, in the opinion of the companies, is that enrolment in these profiles was not the students' first choice. Further improvements in this area would certainly imply adjusting the enrolment procedures after the models used in countries with dual education model. With respect to selection of students enrolled in schools and their allocation to in-company training, after the first or second grade, the experience acquired so far could be analysed to develop a mechanism to support schools and companies in this respect.

6.4. Legislative framework concerning financial support to minors

Discussion with a number of companies gave the impression that many companies are unsure about the methods and flexibility of providing financial compensation to students. One company stated that it "*provides vouchers for students allowing them to purchase in certain retail chains*". Another said that ''*it is not fair that highly motivated students can be paid at most 70% of the*

minimum wage''. The new Law on Dual Education, in force since September 2019, regulates this dilemma, by clearly stating that: ''*Compensation for work-based learning shall be paid once per month, at the latest by the end of the current month for the preceding month, per hour spent in work-based learning, in the net amount not lower than 70% of the minimum wage set in conformity with the law*''.

6.5. Cooperation with schools

Companies state that relevant procedures need to be established to ensure transparency of this cooperation and also raise the level of responsibility of both partners. CEVES thinks that it might be beneficial to establish regular, frequent and obligatory visits of professors to students who are doing an in-company training. With respect to monitoring students – regular attendance, work discipline, motivation, and performance appraisal – it is necessary to establish standardized monitoring and appraisal systems. Performance appraisal for students must be a joint obligation of the teacher of work-based learning and the instructor and master in the company in charge of in-company learning. With respect to planning there is need to introduce procedures of joint planning of WBL by the school and the company. These procedures should cover the methods of monitoring implementation and relevant records to be maintained.

6.6. Financial subsidies for companies

Some companies have specialized training centres where students can be trained in a safe and controlled environment to perform higher-risk work. However, given that this investment can be borne only by larger, often foreign-owned companies, perhaps a subsidy directly to companies or an investment in such rooms in school premises might be beneficial. Also, as a form of support for students of the educational profile locksmith-welder companies are suggesting financial support for them to take certification tests in the final year of learning. Finally, companies located within industrial zones outside of the public transport zones, are suggesting, as part of financial support for students, that a solution be found for transport of students to companies.

6.7. School curricula

Although most companies rated communication with the schools as excellent, a number of companies indicated that WBL provided by the company and theory learned at schools do not match. In these cases, it is possible that curriculum needs to be further modernized, as to be more aligned with the needs of the industry.

6.8. Active promotion of educational profiles

Educational profiles should be actively promoted to motivate young people to work in manufacturing companies within these profiles.

7.   ANNEX: Key definitions used by the Law on Dual Education

In the section below, we provide a list of definitions of the most frequently used notions, stemming from the Law on Dual Education.

Dual education is a vocational secondary education system delivery model, in which knowledge, skills, capabilities and attitudes (hereinafter: competences) are acquired, enhanced and developed through school-based theoretical instruction and practical exercises and work-based learning at an employer, in accordance with qualification standards and curricula;

Employer is a legal entity or entrepreneur fulfilling the prescribed requirements to organise work-based learning for students under the dual education system, and whose field of economic activity enables the delivery of the contents specified in the relevant curriculum;

Work-based learning is an organised process in which students acquire the competences for performing a specific occupation or a group of occupations, under the guidance and supervision of instructors and coordinator of work-based learning in a real-life work environment at an employer;

Instructor is a person employed with an employer, responsible for ensuring directly the delivery of contents specified in the curriculum through work-based learning and that students acquire competences prescribed by the qualification standard;

Work-based learning coordinator is a person employed with a secondary vocational school, or a teacher of practical instruction, whose responsibility is to plan, monitor, organise and evaluate the delivery of work-based learning at an employer, in collaboration with the instructor;

Work-based learning delivery plan provides a description of the activities, location and timetable of work-based learning delivery and it is developed and adopted through cooperation between a school and an employer.

8. ANNEX: The questionnaire used for online interviews (Only version in Serbian available)

I OPŠTE O KOMPANIJI
Naziv i adresa kompanije
Ime, prezime i funkcija u kompaniji osobe koja popunjava upitnika
U kom sektoru poslujete
Koje godine je osnovana kompanija
Koje je dominantno vlasništvo kompanije (preko 50% u vlasničkoj strukturi)?
Državno ☐   Strano ☐   Domaće privatno ☐
Koliko zaposlenih ima kompanija?

II DUALNO OBRAZOVANJE U VAŠOJ KOMPANIJI
Sa kojom srednjom stručnom školom sarađujete u okviru dualnog obrazovanja, i od kada?
Za koji obrazovni profil pružate podršku? *[označite polja]*

Električar ☐　　　　Bravar-zavarivač ☐　　　　Industrijski mehaničar ☐

Modni krojač ☐　　　　Mehaničar motornih vozila ☐

Elektromonter mreže i postrojenja ☐ Drugo_____ ☐

Koliko učenika u odabranim obrazovnim profilima pohađa praktičnu nastavu u Vašoj kompaniji ove godine? *(navedite zasebno za sve obrazovne profile u drugom i trećem razredu))*

<div></div>

	Drugi razred:	**Treći razred:**
Električar	_____	_____
Bravar-zavarivač	_____	_____
Industrijski mehaničar	_____	_____
Modni krojač	_____	_____
Mehaničar za motorna vozila	_____	_____
Elektromonter mreže i postrojenja	_____	_____
Drugo	_____	_____

Da li imate devojčice na praktičnoj nastavi u Vašoj kompanija? Ukoliko da, koliko i u kojim obrazovnim profilima?

Da ☐　　　Ne ☐

Ako da, koliko i u kojim obrazovnim profilima:

Da li ste školi i/ili učenicima obezbedili finansijsku i/ili neku drugu vrstu pomoći tokom saradnje? Ako jeste, molimo vas da navedete koju vrstu pomoći [označite polja]

Transportni troškovi ☐

Stipendije ☐

Topli obrok ☐

Mašine i alate za školsku radionicu ☐

Drugo_____ ☐

Da li su vaši instruktori obučeni od strane GIZa i PKSa da rade sa učenicima? Ako da, koliko njih?

<div></div>

Koliko učenika je kompanija obučila u okviru dualnog obrazovanja do sada, i koliko od njih je zaposlila?

Ukupan broj učenika, onih koji su završili školovanje i onih koji su u ovom trenutku na praksi u okviru dualnog obrazovanja u vašoj kompaniji:_____
Broj zaposlenih svršenih učenika:_____

III ZADOVOLJSTVO PRAKTIČNOM NASTAVOM U OKVIRU DUALNOG OBRAZOVANJA

Da li dualno obrazovanje zadovoljava potrebe Vaše kompanije za kvalifikovanom radnom snagom? (označite jedno polje)

1 – Potpuno zadovoljava potrebe ☐

2 – Zadovoljava potrebe ☐

3 – Uglavnom zadovoljava potrebe ☐

4 – Uglavnom ne zadovoljava potrebe ☐

5 – Ne zadovoljava potrebe ☐

6 – Potpuno ne zadovoljava potrebe ☐

U kojoj meri modernizovani obrazovni profili zadovoljavaju potrebe Vaše kompanije?
[Ovo se isključivo odnosi na modernizovane profile, a ne na druge aspekte dualnog obrazovanja]

1 – Potpuno zadovoljava potrebe ☐

2 – Zadovoljava potrebe ☐

3 – Uglavnom zadovoljava potrebe ☐

4 – Uglavnom ne zadovoljava potrebe ☐

5 – Ne zadovoljava potrebe ☐

6 – Potpuno ne zadovoljava potrebe ☐

U kojoj meri modernizovani obrazovni profili daju šansu učenicima da budu bolje obučeni kako bi zadovoljili potrebe za kvalifikovanom radnom snagom Vaše kompanije?

1 – Potpuno zadovoljavaju potrebe ☐

2 – Zadovoljavaju potrebe ☐

3 – Uglavnom zadovoljavaju potrebe ☐

4 – Uglavnom ne zadovoljavaju potrebe ☐

5 – Ne zadovoljavaju potrebe ☐

6 – Potpuno ne zadovoljavaju potrebe ☐

Kako biste ocenili napredak učenika tokom poslednje dve godine praktične nastave u Vašoj kompaniji u sledećem:
Praktične veštine
odlične ☐   veoma dobre ☐   dobre ☐   prosečne ☐   loše ☐   veoma loše ☐
Teorijsko znanje
odlično ☐   veoma dobro ☐   dobro ☐   prosečno ☐   loše ☐   veoma loše ☐
Društvene kompetencije
odlične ☐   veoma dobre ☐   dobre ☐   prosečne ☐   loše ☐   veoma loše ☐
Posvećenost učenju
odlična ☐   veoma dobra ☐   dobra ☐   prosečna ☐   loša ☐   veoma loša ☐
Navedite 3 najveća izazova sa kojima se suočavate prilikom implementacije praktične nastave u Vašoj kompaniji.
Navedite 3 najveće koristi implementacije praktične nastave u Vašoj kompaniji.
Koliko su Vaši instruktori zadovoljni sa pedagoško-didaktičkom obukom koju u obezbedili GIZ i PKS?
Veoma zadovoljni ☐   Zadovoljni ☐   Delimično zadovoljni ☐   Nisu zadovoljni ☐

IV PERSPEKTIVA

Da li je Vaša kompanija zainteresovana da nastavi da učestvuje u dualnom obrazovanju?
Da ☐   Ne ☐   Ako ne, molimo navedite razlog_____
Ako da, u okviru kojih obrazovnih profila:

Električar ☐   Bravar-zavarivač ☐   Industrijski mehaničar ☐

Modni krojač ☐   Mehaničar za motorna vozila ☐

Elektromonter mreže i postrojenja ☐ Drugo_____ ☐

Uopšteno govoreći, da li očekujete veću zapošljivost učenika koji su pohađali opsežnu praktičnu nastavu tokom srednje škole u okviru dualnog modela obrazovanja?
Da ☐   Ne ☐   Ne znam ☐

9. ANNEX: The questionnaire used for F2F interviews

Section A. GENERAL INFO ABOUT COMPANY

A1	**ID of the company** [fill in advance]	_____
A2	**Name of the company** [fill in advance]	_____
A3	**Registered economic activity** [fill in advance]	_____
A4	**Total formal number of employees** [fill in advance based on Financial statements 2018]	_____
A5	**Size of company from the sample:** [fill in advance].	1. Micro and Small [up to 49 employees] 2. Medium [50-249 employees] 3. Large [250 and more employees]
A6	**How many employees company employs in total?** [This can differ from formal number. Thus, underline that this include also service contract etc.]	_____
A7	**Ownership structure** [Selected ownership types refer to 50% share in total ownership structure]	1. Private domestic ownership 2. Foreign ownership 3. State ownership
A8	**Name of the high school the company cooperate with**	_____

Section B. WBL IN YOUR COMPANY

[Ask either management or instructors, depending who has more precise information]

B1	**When did you start with direct cooperation with school?** [year]	_____
B2	**When did you start practical training by the program of dual education?** [year]	_____
B3	**Did you have practical training before this program has been established?** [Single response. This refers to period before 2014/2015]	1. Yes 2. No
B4	**What is the difference between new program and the previous practical training practice?** [Multiple response. Provide details in each of the following segments]	1. Time spent in company 2. Type of activity 3. Level of effort
B5a	**Are some good sides of the old program lost by introducing new, modernized program?** [Single response]	1. Yes 2. No
B5b	**What would you point out as a good aspect of the new program?** [Ask this question, if answer to B5a was YES]	_____

B6	**How many students are on the practical training in your company?** *[Number of students]*	_____
B7	**How many instructors are engaged on the training in your company?** *[That has formally assigned this task]*	_____
B8	**How many days a week student spend their classes in your company?** *[Number of days, up to 5]*	_____
B9	**How many hours a day they spend in your company?** *[Number of hours. Can exceed 8, if that is the response]*	_____
B10	**Can explain in detail what did the program of practical training include?** *[Open question. Provide details]*	_____
B11	**How did you obtain operative plan of practical training?** *[Single response]*	1. Obtained pre-defined plan directly by the school 2. Plan was slightly revised based on your input 3. You significantly contributed to the plan
B12	**How were the students included in the production process?** *[Single response]*	1. Students worked on machines equally as formal employees 2. Students were partially engaged on working on machines 3. Students were engaged on preparatory work and observed working on machines 4. Students were just observing
B13	**What is the difference between the type of machine used in your company from those in schools?** *[Open question, provide details]*	_____
B14	**Did the students have the chance to learn and work on the tasks that would have been a "real" task if they had worked for the company?** *[Single response]*	1. Yes 2. No *Provide more details_____*
B15	**Do you have standardized evaluation process for overall performance of students?** *[Single response]*	1. We have a standardized method for evaluation process 2. Depends from student to student 3. We do not evaluate them. Evaluation is done by the school
B16	**Alternation of theory and praxis** *[Open question, provide details]*	_____

Section C. MANAGEMENT SATISFACTION WITH WBL

	Participating in dual education system	
C1	**What was the motivation for your company to take part in practical training in cooperation with schools?** *[Multiple response]*	1. We want to attract young/new employees 2. We want to influence how potential employees are trained during their high school 3. We see ourselves as a socially responsible company 4. Other
C2	**What are the aspects of dual education that works well in your company?** *[Open question. Provide details]*	_____
C3	**What aspects of dual education are particularly satisfying in your company?** *[Open question. Provide details]*	_____
C4	**Do the dual profiles meet the requirements of your companies?** *[Single response.* *Interval: [1] completely dissatisfied, [6] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] [5] [6]
C5	**What were the main obstacles in implementing dual education in your company?** *[Open question. Provide details]*	_____
C6	**What aspects of dual education could be improved?** *[Multiple response]*	1. Curriculum 2. Cooperation with the school 3. Training for instructors 4. Student behavior 5. Methods of assessment of students 6. Other _____
C7a	**How much did the practical training in your company improve employability of the students?** *[Single response.* *Interval: [1] did not improve, [4] significantly improved]*	[1] [2] [3] [4]
C7b	**In which segments employability was improved?** [Open question. Provide details. Ask this question, if answer to C7a was 2, 3 or 4]	_____
C8	**How many students of the last generation was employed?** *[Number of students employed]*	_____
C9	**Were your expectations of participating in dual system met?** *[Single response.* *Also, provide details]*	1. Yes 2. No _____
	Cooperation with school	
C10	**How satisfying was the communication and cooperation**	[1] [2] [3] [4]

	with school? *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	_____
C11	**On which issues have you communicated with the school?** *[Multiple response]*	1. Curriculum 2. Selection process of students 3. Students' attendance, discipline and progress in the practical training 4. Other_____
C12	**Does your company have opportunity to communicate your experience in practical training with school?** *[Single response.* *E.g. if something is missing in the curriculum]*	1. Yes 2. No _____
C13	**Did the school adjust the curriculum or practice based on your feedback?** *[Single response]*	1. Yes 2. No
C14	**What was adjusted?** [Ask this question, if answer to C4a was YES]	_____
Serbian Chamber of Commerce support		
C15a	**Did you have direct support from Serbian Chamber of Commerce?** *[Single response]*	1. Yes 2. No
C15b	**What kind of support was provided?** [Open question]	
C16	**How satisfying was the communication and cooperation with Serbian Chamber of Commerce?** *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] _____
C17	**What kind of support would be needed from Serbian Chamber of Commerce?** *[Open question. Provide details]*	_____
GIZ support *[If instructors have more information on this segment, ask them instead of management]*		
C18	**Were the expectations for participation in the Project with GIZ met?** *[Single response.* *Also, provide details.]*	1. Yes 2. No _____
C19	**How satisfied were you with the support provided by GIZ?** *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] _____
C20	**What aspects of the support were particularly useful/satisfying?** *[Open question. Provide details]*	_____
C21	**What could be improved?** *[Open question. Provide details]*	_____

Other		
C22	**How did you make selection process for instructors in your company?** *[Open question. Provide details]*	_____
C23	**Do you exchange experience with other companies on students' practical training?** *[Single response]*	1. Yes 2. No

Section D. INSTRUCTORS' SATISFACTION WITH WBL

[If there are two or more instructors, you can either ask separately all question, or summarize it for both. If second is the case, they need to come to a consensus]

Participating in dual education system		
D1	**What are the aspects of dual education that works well in your company?** *[Open question. Provide details]*	_____
D2	**What aspects of dual education are particularly satisfying in your company?** *[Open question. Provide details]*	_____
D3	**What were the main obstacles in implementing dual education in your company?** *[Open question. Provide details]*	_____
D4	**What aspects of dual education could be improved?** *[Multiple response]*	1. Curriculum 2. Cooperation with the school 3. Training for instructors 4. Student behavior 5. Methods of assessment of students 6. Other _____
Training for instructors		
D5	**Did you have formal training dedicated to giving practical training to the students?** *[Single response]*	1. Yes 2. No
D6	**How long did it last?** *[Number of days]*	_____
D7	**What aspects of training did it include?** *[Open question. Provide details]*	_____
D8	**Who did conduct the training?** *[Single response]*	1. German speaking instructor 2. Serbian speaking instructor
D9	**What was the satisfaction with training for instructors provided by GIZ?** *[Single response. Interval: [1] completely dissatisfied, [4] completely satisfied]*	[1] [2] [3] [4]
D10	**Did you consider yourself ready to work with students?** *[Single response]*	1. Yes 2. No
D11	**What aspects can be improved?** *[Open question. Provide details.]*	_____
D12	**9. How many instructors from your company did have**	

	the formal training? *[Number of instructors]*	_____
D13	**Who did have formal training in your company?** *[Single response]*	1. Instructors only (the ones who work directly with students 2. Management only 3. Both instructors and management
D14	**Would you consider useful if there was a written handbook for working with student?** *[Single response.]*	1. Yes 2. No
Cooperation with school		
D15	**How satisfying was the communication and cooperation with school?** *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] _____
D16	**On which issues have you communicated with the school?** *[Multiple response]*	1. Curriculum 2. Selection process of students 3. Students' attendance, discipline and progress in the practical training 4. Other_____
D17	**In which aspects the school was included?** *[Open question. Provide details]*	_____
D18	**Did you have the opportunity to summarize experience together with the school by the end of the year?** *[Single response.* *Also, provide details]*	1. Yes 2. No _____
Students' performance		
D19	**How many students were your mentees in the last year?** *[Number of students]*	_____
D20	**Were they fully involved in practical training all that time?** *[Single response]*	1. Yes, all six hours 2. Partly, several hours 3. Less than half of the time 4. They don't work at all
D21	**What level of theoretical knowledge did the students have?** *[Single response.* *Interval: [1] very low level, [4] very high level* *Also, provide details]*	[1] [2] [3] [4] _____
D22	**To which extent does the theoretical knowledge satisfy requirements necessary for practical training?** *[Single response.* *Interval: [1] completely dissatisfies, [4] completely satisfies* *Also, provide details]*	[1] [2] [3] [4] _____
D23	**To which extent does the basic training received in the first year satisfy requirements necessary for practical training?** *[Single response.* *Interval: [1] completely dissatisfies, [4] completely satisfies*	[1] [2] [3] [4] _____

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	Also, provide details]	
D24	**Did you have the opportunity to see how does the curriculum look like?** *[Single response]*	1. Yes 2. No
D25	**Who did inform you on the curriculum?** *[Multiple response]*	1. Students 2. Teachers 3. Other_____
D26	**Were you satisfied with students' overall performance by the end of their practical training?** *[Single response]*	1. Yes 2. No
D27	**How much practical training contributed to students' overall performance?** *[Single response. Interval: [1] didn't contribute, [4] highly contributed Also, provide details]*	[1] [2] [3] [4] _____
D28	**Questions XX – XX: Please rate the following aspects of students performance** *[Single response. Interval: [1] very low, [4] very high]*	
D28a	**Respecting work discipline**	[1] [2] [3] [4]
D28b	**Tidiness of the workspace**	[1] [2] [3] [4]
D28c	**Safety at work**	[1] [2] [3] [4]
D28d	**Regular attendance**	[1] [2] [3] [4]
D28e	**Interest in work**	[1] [2] [3] [4]
D28f	**Mastering the prescribed competencies**	[1] [2] [3] [4]
D28g	**Compliance with procedures / hierarchies**	[1] [2] [3] [4]
D29	**Were the students interested and dedicated to practical training?** *[Single response.]*	1. Yes 2. No
D30	**How would you rate their interest before they started the program of practical training?** *[Single response. Interval: [1] uninterested, [4] highly interested]*	[1] [2] [3] [4]
D31	**How would you rate their interest after they finished the program of practical training?** *[Single response. Interval: [1] uninterested, [4] highly interested]*	[1] [2] [3] [4]
D32	**What are the reasons behind the students' interest during the process of practical training?** *[Multiple response Also, provide details.]*	1. Creativity in the production process 2. Knowledge they gained in schools 3. Motivation by instructors 4. Higher chances for employment 5. Other_____ _____
General student related questions		
D33	**How many years is needed (in general for any individual**	

	at the beginning) for students to learn necessary skills for independent work with basic requirements *[Number of years.* *Also provide details]*	_____
D34	**If you have female students in your company for training, how would you describe their practical skills, theoretical skills and social competences in comparison to male student?** *[Open question. Provide details]*	• Practical skills_____ • Theoretical skills_____ • Social competences_____ _____
D35	**If you have socially vulnerable students in your company for training, how would you describe their practical skills, theoretical skills and social competences in comparison to male student?** *[Open question. Provide details]*	• Practical skills_____ • Theoretical skills_____ • Social competences_____ _____
Other		
D36	**How program of practical training influenced regular daily production process in your company?** *[Single response]*	1. Production process continued without disruption 2. A part of the production processes had to be on hold while working with students 3. Significant part of production process had to be on hold while working with students 4. Other

Section E. EMPLOYED STUDENTS' SATISFACTION WITH WBL

[If there are two or more instructors, you can either ask separately all question, or summarize it for both. If second is the case, they need to come to a consensus]

E1	**What was the initial reason for applying for this profile?** *[Multiple response* *Also, provide details.]*	1. Somebody told them to do so (parents) 2. They were initially interested to do so 3. They want to work in a company after the high school 4. Because entire family is in the same profile 5. Other_____ _____
E2	**What are the reasons behind your interest during the process of practical training?** *[Multiple response* *Also, provide details.]*	1. Creativity in the production process 2. Knowledge they gained in schools 3. Motivation by instructors 4. Higher chances for employment 5. Other_____ _____
E3	**Were you satisfied with your education in the modernized profiles?** *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] _____

E4	Were you satisfied with your work and working conditions? *[Single response.* *Interval: [1] completely dissatisfied, [4] completely satisfied* *Also, provide details]*	[1] [2] [3] [4] _____
E5	How would you describe curriculum, and did they contribute to your working process? *[Open question. Provide details]*	_____
E6	How much did the practical training improve your employability? *[Single response.* *Interval: [1] did not improve, [4] significantly improved* *Also, provide details]*	[1] [2] [3] [4] _____
E7	What aspects of dual education could be improved? *[Multiple response]*	1. Curriculum 2. Work with teachers 3. Work with instructors 4. Working conditions 5. Level of skills gained 6. Level of involvement in production process 7. Other _____