



Updating a technical vocational school to meet new skills needs Building partnerships with employers and educators for the 21st century

Promising Practice

Implemented by: Technical School Vlasotince, a vocational secondary school funded by the KfW¹ and SDC² Regional Challenge Fund (RCF)

Where: Serbia

Status: Started in 2022

Summary: A technical secondary school in Vlasotince is being supported in a project called “Equipping workshops and classrooms for dual education, training for teachers and instructors from companies” in five secondary level vocational programmes: Mechatronics Technician, Industrial Mechanic, Locksmith-welder, Machine Operator and Construction Machine Operator. The project is funded by the KfW-SDC Regional Challenge Fund (RCF). The funds are being used to modernize school workshops and to digitalize teaching to support more partnerships between the school and employers.

¹ The Regional Challenge Fund was created by the German Federal Ministry for Economic Cooperation and Development (BMZ - Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung) and the German Development Bank (KfW Entwicklungsbank)

² Swiss Development Cooperation

Overview

Technical School Vlasotince is one of two secondary schools in a small town. The technical school has 640 students and established a dual education model in 2016, initially with 5 companies. The school now works with an expanded network of more than 30 industry partners. Technical School Vlasotince is recognized by the government of Serbia as a regional training centre³ and as a hub for young people and adults training/re-training in occupations falling within the several vocational programmes which the school specializes in: construction; mechanical engineering, electrical engineering and economics. To support the growth of employer partnerships, the KfW RCF funds have been made available to update and modernize training equipment and pedagogical approaches within the school.

The investment is helping Technical School Vlasotince to introduce a raft of reforms, including to increase the availability of work-based placements for young people and to create upskilling and re-training courses for adults. To this end, the school is developing non-formal training courses and a process to certify and recognize prior learning for adult workers. It is increasing the emphasis on career guidance and counselling for its young trainees and promoting employability and professional competencies amongst its students, including a focus on having up-to-date digital and technological skills and knowledge of the latest practices in sustainability, to ensure they are job-ready upon graduating their courses. All changes are being supported and influenced by working with employers.

The partnerships are expected to sustain a deeper cooperation between teachers and in-company instructors and will serve to both improve the quality of training, increase youth employability and to upskill and reskill adult workers.

Description

Underpinning this partnership with employers, the support to modernize Vlasotince workshops and to create specialized classrooms is enabling students to improve their practical skills using state-of-the-art industrial equipment as well as up-to-date training equipment for theoretical learning. The equipment funded through the initiative has included:

- Modern equipment for electrical and mechanical engineering.
- Simulator programmes for practical learning in a virtual reality – VR – environment.
- Training sets for basic and advanced pneumatics, hydraulics, mechanics and mechatronics to support theoretical learning.

³ The building of the premises for the training centre and some equipment were financed by the Office for Dual Education and the National Qualifications framework of the Government of the Republic of Serbia.

- Teaching software and materials to support new training methods.
- Computer numerical control (CNC) machinery for mechanical engineering programmes and forklift vehicles for construction programmes.

Five companies⁴ have worked with the school to provide training for teachers, offering mentorship and workplace-based training to ensure all are familiar with how the machinery is used in a real industrial setting. Similarly, in-company trainers from companies have spent time within the technical school to understand more about what students are learning. This cooperation has supported curricula reform and development and a mutual understanding of company skills expectation and what a school can realistically deliver. This has strengthened the technical school and employer partnership.

Objectives

Staff at Technical School Vlasotince wanted to expand its partnerships with employers, to involve them in student training and to work with the school to ensure young people are work ready. One important step was to improve the quality and availability of practical training for students to prepare them better for a modern, digitalized workplace. To achieve these goals, the school has:

- Modernized training workshops with new equipment.
- Introduced new training for teachers and trainers to utilize new digital pedagogies.
- Provided more career guidance to students.

For the longer term, the quality of vocational training will allow students to be more employable with partner companies. Training sufficiently qualified and skilled workers within the context of a labour shortage has encouraged an increasing number of employers to engage with the school.



⁴ Including Gruner Serbian, Elrad Serbia and Elrad WS-S, IGM Mladost, HSV.

How the employer-school partnership is working

Cooperation between the school and industry has intensified through joint planning. Each year, a plan based on a written statement of intent from employers is submitted to the Serbian Chamber of Commerce. The plan states how many students will learn through work placements in their companies. Dual education agreements are signed with companies, which conclude work-based learning contracts with the students and/or their parents.

The implementation of work-based learning is jointly planned within the framework of current curriculum requirements and qualification standards. Certification remains the responsibility of the education system while the practical part of the final exam is carried out in the company. Students spend part of their class time with the employer according to a pre-agreed schedule (e.g. on specific days of the week), with direct cooperation between schoolteachers (work-based learning coordinators) and company instructors/mentors.

Outcomes and impact

The initiative has had multiple benefits, including improving the quality of training and developing students' practical skills and employability. More than 100 students annually are benefiting from the updated equipment and teaching approaches. Digital skills have been developed for students, specifically skills such as being able to operate and programme CNC machines and robotics systems. A focus has been on building general digital skills such as:

- Using simulation and diagnostic software.
- Working in a digitalized environment.
- Data analysis from digital sensors and smart systems.
- Solving technical problems using digital skills.
- Applying the principles of automation and mechatronics in production processes.

Of the first cohort of 30 students in industrial mechanics, 80% were employed upon graduation in 6 partner companies. Employers are benefiting from qualified and job-ready graduates being available locally. In turn, young people are choosing to remain in their communities rather than to migrate to urban areas or abroad.



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Insights and evaluation

The lack of modern equipment at the technical school was a clear obstacle to delivering practical training under simulated industrial conditions. Equally the lack of equipment limited the ability of teachers to adopt new teaching methods and to integrate digital technology into the educational process. This created a feedback loop whereby teachers were lacking experience with modern machinery, software and automated systems and therefore could not teach it to students. At the same time, students were not sufficiently familiar with equipment and work processes before participating in a work-based placement.

The introduction and installation of modern equipment to train students is aiding the digital transformation of school workshops and improving the quality of practical training by supporting learning in simulated work environments. In turn, the availability of equipment has enabled the training of teachers and trainers. This has taken place with the involvement of partner companies' in-house trainers to guarantee an alignment of the digital competencies required to operate the new equipment and the pedagogical competencies to train students in the knowledge and skills to best use it. This cooperation has created a line of communication between the trainers at the technical school and in-company trainers at partner employers.

Creating a culture of school-industry communication and cooperation has not been easy. Schools and companies have different requirements, dynamics and organizational structures. The growth from five to 30 partner companies exacerbated these differences. Whilst manageable with a few companies, as the network became larger, logistical and communication challenges arose in planning and implementing practical training schedules for students. Thematic working groups were set-up with coordinators nominated by the school and companies to address this. Joint digital platforms were set-up for planning and coordinating student learning and tracking their progress.

The key lessons learnt from addressing these multiple issues include:

- Establishing partnerships with industry, whilst crucial for the relevance of school-based vocational training, is hard. Building relationships, communication channels and mechanisms to cooperate and network takes ongoing time, effort and resources on both sides.
- Teacher and in-company trainer training is a continuous requirement as rapid technological advancements and changes to work processes require adaptation and new teaching methods to keep up.

Creating shared digital resources can support networking and exchange helping school-industry partnerships. Given the benefits to students of being exposed to real industrial environments, the efforts pay off both in their knowledge and in their future employability.

Conclusions and next steps

Going forward, the school will expand the availability of dual education programmes and is going to introduce new modules to train its students on green and digital technologies. There are plans to continue encourage more employers to partner with the school and to offer more training places for students and to collaborate on developing digital e-learning modules and microcredentials.

For the longer term, it is hoped that the school can improve its outreach to girls and disadvantaged young people. There is also a wish to engage in international TVET networks to exchange experience in skills which are increasingly global in demand.

Learn more

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To learn more about this project and other projects funded by the KfW-SDC Regional Challenge Fund, visit:

[*Equipping workshops and classrooms for dual education, training for teachers and instructors from companies - Net4VET*](#)

To learn more about Technical School Vlasotince, see:
<https://tsvlasotince.edu.rs/dual-education-technical-vocational-school-in-service-of-the-economy/>

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