



**Good practices
in innovative vocational
education and training
in the context
of the transformation of
Wielkopolska Wschodnia region**

Iceland 
Liechtenstein
Norway grants

Good practices in innovative vocational education and training in the context of the transformation of Wielkopolska Wschodnia region

Konin, Oslo, Radom 2023



Good practices in innovative vocational education and training in the context of the transformation of Wielkopolska Wschodnia region
Dobre praktyki w innowacyjnym kształceniu i szkoleniu zawodowym w kontekście transformacji Wielkopolski Wschodniej

Author's team:

- **Andrzej Budny, Arleta Jaśniewicz, Grażyna Judgek** (Craft Support Center for Dual and Vocational Education, Konin, Poland);
- **Edyta Koziół, Małgorzata Sołtysiak, Joanna Tomczyńska, Mirosław Żurek** (Łukasiewicz Research Network – Institute for Sustainable Technologies, Radom, Poland);
- **Max Mykklagard, Halil Afshar** (FURIM Institutt, Oslo, Norway).

Reviewer:

- **Prof. Daniel Kukla** (Jan Długosz University, Częstochowa, Poland)

The publication was created as part of the project "Innovative vocational education and training in Wielkopolska Wschodnia in the context of energy transformation" (Project No. EOG/21/K3/W/0046) financed by the EEA Financial Mechanism and the budget of the Republic of Poland under the Education Program. The publication only reflects the position of the authors and the financing entities are not responsible for the substantive content contained therein.

The publication presents selected examples of good practices presenting initiatives worth imitating in the area of vocational education.

ISBN 978-83-7789-741-6

© Copyright by Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom

All rights reserved. No part of this work may be reproduced in any way without written permission, except for brief quotations embodied in articles and reviews. For information, please contact the authors or project partners.

Publishing Series : Labor Pedagogy Library

Published since 1987

Cover design : Marta Pobereszko

Publishing: Marta Pobereszko

Language editor: Dr. Karol Alichnowicz

The cover was designed using resources from Freepik.com



Łukasiewicz Research Network – Institute for Sustainable Technologies
Scientific Publishing House
26-600 Radom, ul. K. Pułaskiego 6/10, central telephone number (48) 364-42-41
e-mail: institute@itee.lukasiewicz.gov.pl www.itee.lukasiewicz.gov.pl

CONTENTS

INTRODUCTION	4
1. Forms of cooperation between employers and schools providing education in vocational training professions	5
2. Examples of good practices	8
2.1. Complex of General and Technical Schools in Kłodawa - patron class.....	8
2.2. Radom Metal Cluster - dual education in the profession of cutting machine operator	13
2.3. Complex of Electronic Schools named after Bohaterów Westerplatte in Radom - dual education in the profession of automation technician	19
2.4. Łukasiewicz Research Network – Institute for Sustainable Technologies - national internships for students of vocational education.....	25
2.5. Crafts, Dual and Vocational Education Support Center in Konin - foreign professional internships in Wielkopolska Wschodnia	34
2.6. Craft Support Center, Dual and Vocational Education in Konin – Professionals' Night.....	40
2.7. Łukasiewicz Research Network – Institute for Sustainable Technologies and the Construction School Complex K. Wielkiego - professional skills competition "Dry construction systems Radom 2021"	44
2.8. Mechanism of tripartite cooperation between the Self-Government of the Wielkopolska Voivodeship, schools providing vocational education and a university on the example of the project "Time of BIS professionals - vocational Wielkopolska"	49
2.9. Center for Support of Crafts, Dual and Vocational Education in Konin - European funds for Greater Poland 2021-2027 - support for vocational education	54
2.10. Oslo City Council's strategy to increase the number of students graduating from secondary school	58

INTRODUCTION

The publication presents selected examples of good practices as a result of work carried out under result No. 3 entitled: ***Good practices in innovative vocational education and training in the context of the transformation of Wielkopolska Wschodnia***, developed as part of the project "Innovative vocational education and training in Wielkopolska Wschodnia in the context of energy transformation", which was aimed at preparing local government units of Wielkopolska Wschodnia to take on the challenges related to changes in structure economic result of the energy transformation, which require, among others, adapting the offer and infrastructure of vocational education to the needs of the changing labor market. The project is financed by the EEA Funds and implemented under Component III OF THE EDUCATION PROGRAM Institutional cooperation to improve the quality and matching of vocational education and training (VET) and lifelong learning.

In accordance with the competition application, as part of task 3, the project partners identified and described selected examples of good practices, which can be an inspiration for local governments and directors of schools and institutions providing education in vocational education professions in Wielkopolska Wschodnia. When selecting examples of good practices, the authors were guided primarily by the fact that the selected practices:

- they come from the areas where the partners operate, therefore these activities are verified and therefore reliable;
- are unique activities and therefore innovative;
- they are feasible, so they can encourage others to implement them;
- they do not duplicate each other, but complement each other, so everyone can find something for themselves.

Selected examples of good practices complement the "Strategy for vocational education and training in the context of the energy transformation of Wielkopolska Wschodnia until 2040" developed in the project and show that the actions proposed in it as part of priority projects are possible to implement.

1. Forms of cooperation between employers and schools providing education in vocational training professions

Vocational education and higher education are the areas of education that have the greatest impact on providing modern staff for the Polish economy. By participating in the formal vocational education system, studying at a first-cycle vocational school, a technical secondary school, a second-cycle vocational school or studying at a university, a young person is prepared to acquire specific professional qualifications and enter the labor market. Therefore, in order to obtain the best possible effects of vocational education, schools providing education in vocational training and universities should conduct it, especially practical education, in cooperation with employers. This approach is one of the key activities aimed at preparing qualified staff for the needs of industry and, more broadly, the entire economy. In this joint action, the worlds of education and work become places for students to acquire knowledge and skills that complement each other.

Through practical classes in enterprises in a real work environment, students can acquire the skills and experience needed to function in the future as an employee in one or another enterprise.

A student at the learning stage, through his first contact with the world of work, takes the first real step towards entering the labor market.

Therefore, the development of education for pupils and students in real working conditions requires effective encouragement of employers to cooperate with schools and the creation of appropriate organizational conditions for the implementation of education in the work environment¹.

The Education Law Act² stipulates in Art. 3, section 1a, that the educational system in the field of vocational training is also supported by employers, employers' organizations, economic self-governments or other economic organizations, professional associations or self-governments, sector councils for competences and the Program Council for competences.

The scope of possible cooperation between a vocational school and employers is defined in the Education Law³.

A school principal who wants to introduce a new vocational education profession into the educational offer is obliged, among others, to: to obtain the opinion of the provincial labor market council on the appropriateness of education in a given profession in accordance with the needs of the labor market and to establish cooperation with employers whose activities are related to a given

¹Regulations of the competition "Preparation of solutions for engaging employers in organizations of practical vocational training - stage II", no. POWR.02.15.00-IP.02-00-001/18 https://www.power.gov.pl/media/57670/Regulamin_powiedza_30.pdf (accessed: December 5, 2023), p. 10.

²Announcement of the Marshal of the Sejm of the Republic of Poland of March 10, 2023 on the announcement of the uniform text of the Education Law Act (Journal of Laws 2023, item 900, as amended).

³There.

profession or industry. Cooperation should include at least one cycle of education in a given profession.

The director of a school providing vocational education, under a contract or agreement, establishes cooperation with the employer, which may consist in particular in:

- 1) creating patronage classes;
- 2) preparing a proposal for a vocational teaching program;
- 3) implementation of vocational education, including practical vocational training and student internship;
- 4) equipment for workshops or school laboratories;
- 5) organization of the professional examination;
- 6) improving vocational education teachers, including organizing industry training;
- 7) implementation of career counseling and promotion of vocational education⁴.

It should be emphasized that the legislator did not describe all the above forms of cooperation in the regulation. The Education Law Act comprehensively defines the framework for cooperation in the area of practical vocational training (Article 121, Education Law Act and the regulation on practical vocational training⁵) with employers and student internships (Article 121a, Education Law Act). In the case of other forms, the director of the school providing vocational education, together with the employer, establishes the conditions of joint cooperation under a contract or agreement.

Figure 1 shows the areas of cooperation between schools providing vocational education and employers.

⁴Ibid., art. 68, section 7c.

⁵Regulation of the Minister of National Education of February 22, 2019 on practical vocational training (Journal of Laws of 2019, item 391).

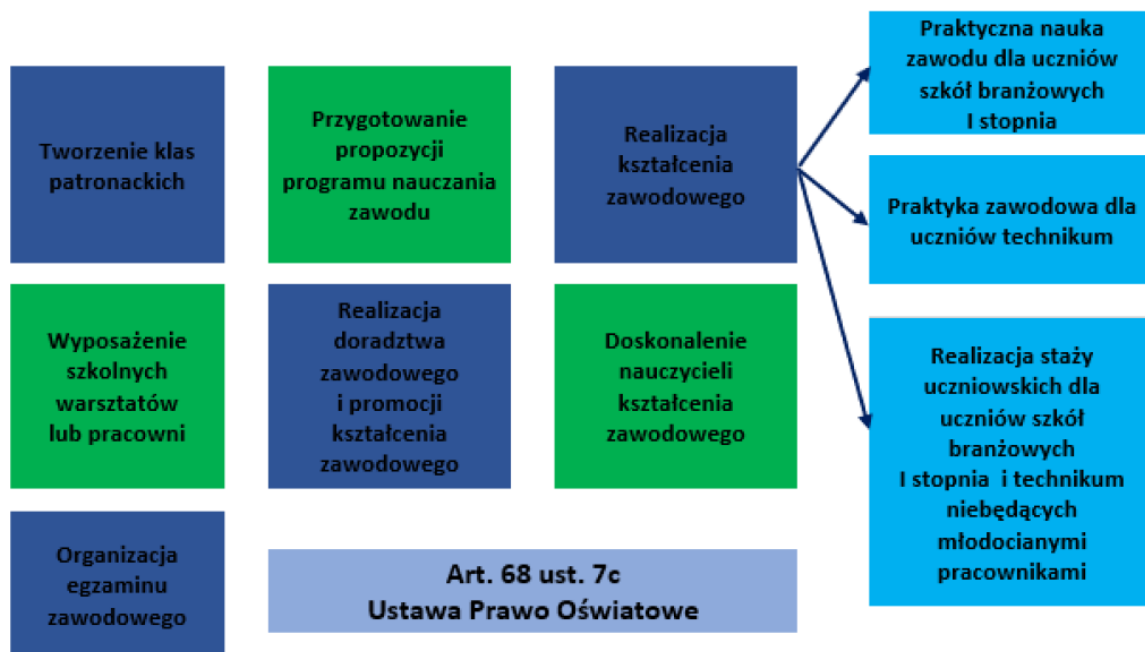


Fig. 1. Areas of cooperation between a school providing vocational education and an employer

Source: D. Witrykus, W. Kordyś, D. Chorąży: *Model program of student internship in the profession of tourism technician in rural areas [515205]*. PPH Erra sp. z o. o., Warsaw, 2022, p. 65.

In available literature sources and on the websites of schools providing training in vocational training professions, you can find other joint activities carried out jointly by representatives of the school and the company, including:

- 1) organization of joint competitions, including procedures of international WorldSkills and EuroSkills competitions referring to the idea of professional skills competitions⁶;
- 2) participation in research on vocational education conducted by research institutes, universities and other entities;
- 3) creating clusters for vocational education, e.g. Radom Metal Cluster;
- 4) jointly conducting vocational qualification courses or vocational skills courses;
- 5) participation of employers in meetings with students (vocational lessons, career counseling);
- 6) employers' participation in meetings with parents, e.g. during interviews;
- 7) financing scholarships for outstanding students;
- 8) professional trips to workplaces;
- 9) organizing meetings with parents and students in companies.

⁶Professional skills competitions as a path to perfection: <https://mypowiedzowcy.pl/konkursy-umiejtnosci-zdrowie-droga-do-powiedzlosci/> (access: October 17, 2023).

2. Examples of good practices

2.1. Complex of General and Technical Schools in Kłodawa - patron class

1) Institution

The Complex of General and Technical Schools in Kłodawa is an institution providing general and vocational education. The school has been operating for over 70 years. The school has been operating in its current formula since September 1996, when two secondary schools operating in Kłodawa were merged. As a result of the merger of the Vocational School Complex and the Secondary School, the Secondary School Complex was established. Currently, the school provides vocational education in four professions:

- IT specialist,
- logistics technician,
- electrical technician,
- underground mining technician.

The creation of a patronage class supporting education in the profession of an underground mining technician was a joint initiative of the governing body, the school and the "Kłodawa" SA Salt Mine.

The mine is the largest producer of rock salt in Poland and the only producer of natural magnesium-potassium salt in the country and the only producer in Europe of natural salt with a high degree of purity, natural white color with a gray or pink tint. The Kłodawa salt dome is 26 km long and reaches a maximum width of 2 km. It is the largest in Poland. The mine is exploited using the traditional mining method, which allows to fully preserve the natural properties of salt created by nature. Final products are obtained through mechanical processing, i.e. crushing, grinding, sorting - without the use of chemical treatments.

The agreement to establish a patronage class was signed on March 31, 2022. The mine's patronage covers both the class created in the 2022/23 and 2023/24 school years. A total of 24 students use this form of support (as of September 2023).

2) Context

commune is located in central Poland, in the Greater Poland Voivodeship, on the Rgilewka River. It is located in an economically attractive region due to its natural resources and soils of high quality. The commune with an area of 129 km is inhabited by 14,500 people, and the city itself by 7,300 inhabitants.

Salt Mine is the largest and most famous workplace, which is also one of the main sources of income for the inhabitants. Its history dates back to 1946. The basis for the creation of the salt mine in Kłodawa is the gravimetric research started in the 1930s, which showed that in this area there is a shallowly hidden, powerful salt dome. The construction of the mine and potassium salt processing plant began after World War II, and the first tons of rock salt were extracted in 1956. The 1970s saw the expansion of the mine - production at that time amounted to over one million tons per year. By default, the largest customer of the salt mine was industry. With the economic downturn in the industry (at the turn of the 1980s and 1990s), the demand for salt also decreased, which resulted in a decline in mining in the "Kłodawa" Mine. Currently, the mine is the largest domestic producer of rock salt. In 2019, the mine obtained a license to extract rock salt and magnesium-potassium salt as associated minerals from the "Kłodawa 1" deposit. The license is granted for the period from April 1, 2019 to April 1, 2052 (33 years).

Rebuilding the market position of the Kłodawa Salt Mine SA is associated with the growing demand for qualified employees in the profession of underground mining technician. Therefore, the mine management took the initiative to start training in this profession at school.

Cooperation between a key employer in the industry dominating in the Kola County and a local institution providing vocational education is therefore the result of the development needs of both entities and a response to the challenges of the real sphere related to the local labor market. The cooperation also meets the needs of the school, which provides its students with the opportunity to undergo practical vocational training based on the principles of dual education.

3) Challenge

Adjusting the quality of education in the profession of underground mining technician to the needs and requirements of a key employer on the local labor market.

4) The solution has been introduced

Solution description:

In the adopted model, teaching the profession of an underground mining technician takes place in a five-year cycle. The field is attractive for students interested in mining, mining machines and equipment. The student's preferred personality traits are imagination, creativity and patience.

The education cycle prepares you to obtain the following qualifications:

- GIW.02. Underground mining of deposits (common qualification with the profession of underground mining miner),
- GIW.09. Organization and conduct of underground mining of deposits.

After completing their education, young apprentices are prepared to carry out the following professional tasks:

- performing works related to drilling, maintaining and liquidating underground mine workings,
- performing works related to the extraction of deposits,
- performing works related to ventilation and air-conditioning of underground mine workings,
- performing works related to identifying, combating and preventing threats in underground mining plants,
- performing activities related to the organization and conduct of mining works,
- performing activities related to organizing prevention and removing threats in underground mining plants.

Students of the patronage class are guaranteed professional internships. The practical education dimension includes 8-week vocational training at the Kłodawa Salt Mine. Each school year, 12-person classes were created, which gives graduates of the patronage class a guarantee of employment in the salt mine. The condition is to obtain positive grades in professional exams.

Sources of funding:

Financing for practical vocational training, which takes place at the mine, comes from the sources of Kopalnia Soli "Kłodawa" SA. Other financial resources come from public sources, including educational subsidies. Financial resources are allocated, among others, to: to finance practical vocational training conducted in the form of dual education.

5) Benefits**Benefits for the employer:**

- increase in the company's prestige in the region;
- establishing direct relations with the vocational education sector;
- reducing costs related to the preparation and introduction to work of a future employee;
- creating a database of potential employees and easier access to highly qualified staff;
- conducting joint marketing activities in the promotion of vocational education;
- sharing knowledge in the field of new technologies and industry development prospects.

Benefits for students:

- increasing awareness of your professional choice;
- the opportunity to acquire practical skills related to the operation of tools, devices and machines, become familiar with the mining process and the technologies used;
- development of interpersonal competences and learning relationships in the real workplace environment;
- learning in real working conditions (including stress) and learning mechanisms for dealing with difficult situations at work - better social preparation for employment;
- development of teamwork skills, establishing personal and professional relationships;
- better assessment of one's own competences and professional qualifications, learning about one's strengths and weaknesses;
- improving self-esteem;
- learning about the requirements for future job candidates;
- learning about the actual work environment and work organization processes;
- a chance to obtain better results in the examination confirming qualifications in the profession of underground mining technician: GIW.02. Underground mining of deposits (professional qualification common to the school profession of underground mining miner) and GIW.09. Organization and conduct of underground mining of deposits.
- socialization of the student in the work environment and increasing motivation to learn.

Benefits for the school:

- increasing the quality of education and the prestige of the school;
- creating lasting relationships with a key employer on the local labor market;
- reducing the costs of practical vocational training;
- introduction of a dual education system at the technical secondary school level;
- reducing problems with the employment of practical vocational training instructors;
- increasing students' motivation to learn and prepare for an external examination of professional qualifications.

Contact:

Jerzy Markowski, Director of the Complex of General and Technical Schools in Kłodawa.

Sources:

- 1) Aleksander Kowalewicz: Patronage classes - a way to the labor market: <https://plus.gloswielkopolski.pl/klasy-patronackie-osob-na-rynek-pracy/ar/12697872> , (accessed: October 2, 2023).
- 2) Patronage classes: <https://historia.amu.edu.pl/dla-szkol/klasy-akademickie> , (access: October 3, 2023). All information is provided by the Representative of the Dean of the Faculty of History of Adam Mickiewicz University for patronage classes.
- 3) Statute of the Complex of General Education and Technical Schools in Kłodawa: <https://www.zsoitkłodawa.pl/images/tekst/statut2019.pdf> (accessed: 23/09/2023).
- 4) Urszula Sztanderska, Elżbieta Drogosz-Zabłocka (ed.): Costs of post-secondary and post-secondary education. Educational Research Institute, Warsaw: <https://produkty.ibe.edu.pl/docs/inne/ibe-ksiazka-ee-koszty-edukacji-ponadgimnazjalnej-i-policealna.pdf>, (accessed: 29/09/2023).
- 5) Koło County Development Strategy for 2015-2025, Koło County Office, 2015: <https://www.bip.starostwokolskie.pl/plik,4149,strategia-rozwoju-powiatu-kolskiego-na-lata-2015-2025-pdf.pdf> (accessed: 23/09/2023).
- 6) Website of the "Kłodawa" SA Salt Mine: <https://sol-kłodawa.com.pl/> , (accessed: August 18, 2023).
- 7) Website of the Complex of General and Technical Schools in Kłodawa: <https://www.zsoitkłodawa.pl> , (accessed: 12/09/2023).

2.2. Radom Metal Cluster - dual education in the profession of cutting machine operator

1) Institution

The Radom Metal Cluster is an initiative coordinated by the Chamber of Industry and Commerce of the Radom Region. It operates in the city of Radom (Poland) and the Radom district. The beginning of the joint activities of the Radom Metal Cluster was the signing of the Metal Industry Cooperative Association Agreement in 2011 by 13 companies and institutions. Currently, the Cluster is involved in activities coordinated by the Chamber of Commerce and Industry of the Radom Region:

- 25 enterprises from the metal industry that are associated as members (see: <https://klastermetalowy.radom.pl/czlonkowie/>, (date of access: June 12, 2023);
- 8 supporting partners, including: Radom City Hall, Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom, University of Radom, Faculty of Mechanical Engineering;
- 3 institutions educating students in the profession of vocational training operator of cutting machines (Major H. Hubal Vocational School Complex in Radom, T. Kościuszko Technical School Complex in Radom, Vocational and Continuing Education Center No. 2 in Radom).

The cluster does not have legal personality.

2) Context

The city of Radom is perceived in the country and Europe as an important center for the development of the metal industry⁷, which is also confirmed by representatives of the city authorities and Radom entrepreneurs themselves⁸. In the Radom Brand Strategy⁹, the development of the metal industry is one of the strengths of the economy. From qualitative research¹⁰ conducted in the form of interviews, respondents indicated that the metal sector (processing, construction of machines and devices, automation of machines and devices) is one of the characteristic features of the Radom subregion. The weaknesses of the Masovian metal industry include high competition in the region, low level of social capital (high distrust and low

⁷ *Adaptation plan for the city of Radom to climate change by 2030* (2018). Institute of Environmental Protection - National Research Institute, Institute of Meteorology and Water Management - National Research Institute, Institute of Ecology of Industrial Areas, Arcadis Polska Sp. z o. o., p. 22.

⁸ Zielona Linia portal: <https://zielonalinia.gov.pl/-/w-radomiu-branza-metalowa-rosnie-w-sile-braujemy-Jestak-fachowcow-65642> (data from 2015) (access date: 12/06.2023).

⁹ *Radom Brand Strategy* (2009). DEMO E'ective Launching, Kraków.

¹⁰ *NUTS 2 and NUTS 3. Metropolitan, regional and subregional levels. Report on the implementation of qualitative research* (July 2020). Center for Innovation Management and Technology Transfer, Warsaw University of Technology, Warsaw, p. 11.

degree of association relative to the size of the industry) and the outflow of staff to higher-paid and more prestigious professions¹¹.

To meet these needs, in 2011, on the initiative of the Chamber of Commerce and Industry of the Radom Region, under the Metal Industry Cooperative Association Agreement, the Radom Metal Cluster was established.

The Radom Metal Cluster is, on the one hand, a response to the needs of the local (Radom) labor market and the needs of employers related to recruiting employees, and on the other hand, to the needs of schools providing training in the profession of vocational training machine operator, which are looking for places for students to take practical classes.

3) Challenge

Introduction of practical vocational training in enterprises on the basis of dual education for students of Radom vocational schools studying the profession of cutting machine operator.

4) The solution has been introduced

Solution description:

In the dual education model in Radom, it was assumed that a student of a first-cycle vocational school learning the profession of "cutting machine operator" begins practical classes in the first semester at the Vocational and Practical Education Center, where he learns the basics of making machine parts by manual machining and taking measurements. workshops. Equipped with basic professional competences, from the second to the fifth semester, the student continues practical classes in the company, where he expands his competences to operate conventional and numerically controlled machines. In the sixth semester, he returns to the Vocational and Practical Education Center, where he prepares for an external exam confirming professional qualifications.

Data from the Chamber of Industry and Commerce of the Radom Region show that approximately 530 students took advantage of the dual education offer, and in the 2022/2023 school year, 50 students started practical classes in enterprises belonging to the Radom Metal Cluster.

A very important task carried out by representatives of companies associated in the Radom Metal Cluster is to promote technical professions among young people. For this purpose, among others: representatives of companies from the Cluster participate in a series of annual meetings with parents of primary school students.

¹¹ *Masovian metal industry. Potential and trends (2018)*. 4CF Sp. z o. o., Warsaw, p. 2.

Sources of funding:

Financial resources come mainly from voluntary annual contributions from companies associated within the Radom Metal Cluster. The amount of the annual contribution depends on the level of employment in the company. The collected funds are allocated, among others, to: to finance:

- kits for students (each student, before starting practical classes at the company, receives: textbooks, work clothes);
- awards for students with the highest average grade on their diploma;
- conducting promotional and advertising activities (e.g. developing and printing information leaflets, maintaining a website, purchasing and placing banners at schools promoting dual education in companies in the profession of cutting machine operator).

Another source of financing are national and international research projects implemented by the coordinator, the Chamber of Industry and Commerce of the Radom Region. Below are sample projects:

- **"ProFUTURE platform - integrated promotional and image activities of the Radom Metal Cluster"** (2022), whose aim was to develop a new communication model that would strengthen the image of the local industry through, among others, creating a database of companies in the form of a catalog of business cards of cluster members and enabling the search for new recipients and new markets by introducing a B2B platform;
- **"PROFESSIONALS - the future of the Radom Metal Cluster"** (2021), which was a unique project based on the dual education model developed by the Chamber of Commerce and Industry of the Radom Region (IPHZR), the Education Department of the Radom City Hall (WE UM Radom) and selected technical secondary schools in Radom in cooperation with entrepreneurs from the Radom region.

The costs of remuneration of employees - practical vocational training instructors are partially reimbursed to companies by the Education Department of the city of Radom from funds allocated for the educational subsidy.

5) Benefits

Benefits for Cluster members:

- establishing cooperation with schools providing vocational training in the profession of cutting machine operator;
- recruiting participants of practical classes to work after their completion;
- reducing costs related to the preparation and introduction to work of a future employee;
- presence in the industry OneStopShop - a catalog of companies divided into the processing technologies used;
- production cooperation and subcontracting and building a cooperative culture;
- internationalization through participation in international projects;
- Networking support in obtaining advice, finding sources of financing and aid funds for company development;
- conducting joint marketing activities and participating in international trade fairs;
- possibility of using intermediation in B2B services;
- establishing B2B industry cooperation (receiving inquiries both within the cluster and from external entities);
- enabling the creation of consortiums to carry out orders;
- using advisory support during the execution of orders;
- participation in forums, meetings for the exchange of expert and specialist knowledge in the areas of: digitalization, internationalization, technology, marketing and HR;
- improving staff competences through workshops, training, presentations and shows of companies and strategic partners;
- promotion in local media and social channels and image building through cooperation with sports clubs;
- enabling the exchange of experiences, good practices, solutions and know-how and participation in study visits to other companies;
- organizing events, i.e. business breakfasts, internal industry meetings, job fairs, CSR activities;
- concluding cooperation with business environment institutions and R&D.

Benefits for students:

- increasing awareness of your professional choice;
- the opportunity to acquire practical skills related to the use of tools, devices and machines, become familiar with the production process, technologies used, and services provided in the workplace;
- development of personal competences (e.g. cooperation in a group, cooperation with internal and external clients, solving problems occurring in the workplace, working in stressful conditions) through contact with employees and external people;
- improving self-esteem;
- learning about the requirements for future job candidates and, by participating in practical classes, supplementing professional competences and meeting the real needs of the employer;
- learning about the actual work environment and work organization processes;
- increasing the chance of obtaining a higher grade in the exam confirming qualifications in the profession of cutting machine operator;
- socialization of the student in the work environment and increasing motivation to learn.

Benefits for the school:

- establishing cooperation with local employers and making educational goals more realistic in line with the needs of companies;
- reducing costs related to the purchase of often very expensive machines and devices;
- reducing problems with the need to employ specialists - practical vocational training instructors;
- improving the pass rate of students in the external vocational qualification exam MEC.05. Use of cutting machines. The pass rate for students on the first exam date is higher than average and reaches 85%, with the practical part reaching 100%.

Contact:

Przemysław Radomski, Coordinator of the Radom Metal Cluster

Sources:

1. Łukasz Biańczak, Przemysław Radomski, Mirosław Żurek: Analysis of organizational aspects of the functioning of the dual education model implemented within the Radom Metal Cluster - survey

- results (part 1). Adult Continuing Education, No. 4, 2021, DOI: 10.34866/59t1-5a19 (<https://edukacjaustawicznadoroslych.eu/index.php/pl/eud/2021/4/12>).
2. Łukasz Białczak, Przemysław Radomski, Mirosław Żurek: Assessment of the effectiveness of dual education for students coordinated by the Radom Metal Cluster - survey results No. 1, 2022, DOI: 10.34866/4f41-a110, <https://edukacjaustawicznadoroslych.eu/index.php/pl/eud/2022/1/13> .
 3. Masovian metal industry. Potential and trends. 4CF Sp. z o. o., Warsaw, 2018.
 4. NUTS 2 and NUTS 3. Metropolitan, regional and subregional levels. Report on the implementation of qualitative research. Center for Innovation Management and Technology Transfer, Warsaw University of Technology, Warsaw, July 2020.
 5. Adaptation plan for the city of Radom to climate change by 2030. Institute of Environmental Protection - National Research Institute, Institute of Meteorology and Water Management - National Research Institute, Institute of Ecology of Industrial Areas, Arcadis Polska Sp. z o. o., 2018.
 6. Radom Brand Strategy (2009). DEMO E'ective Launching, Kraków.
 7. Website of the Chamber of Industry and Commerce of the Radom Region: <https://radomskibiznes.pl/> (accessed: 12/06/2023).
 8. Website of the Radom Metal Cluster: <https://klastermetalowy.radom.pl/aktualnosci/> , (accessed: 12/06/2023).
 9. Zielona Linia Portal website: <https://zielonalinia.gov.pl/-/w-radomiu-branza-metalowa-rosnie-w-sile-braujemy-Jestak-fachowcow-65642> (data from 2015), (date of access: 12/06/2023).

2.3. Complex of Electronic Schools named after Bohaterów Westerplatte in Radom - dual education in the profession of automation technician

1) Institution

Complex of Electronic Schools named after Bohaterów Westerplatte in Radom has existed since 1967.

Technical secondary school at the Electronic School Complex. Bohaterów Westerplatte in Radom is a public school run by the Commune of Radom. Pedagogical supervision over the school is exercised by the Masovian Education Superintendent.

The school provides education in vocational education professions specified in the classification of vocational education professions in the electronics and mechatronics industry:

- automation technician,
- electronics technician,
- IT specialist,
- Mechatronics technician,
- programmer technician,
- robotics technician.

The duration of the vocational education cycle at the technician level is 5 years.

2) Context

The management of the Electronic School Complex found it justified to extend the scope of the school's cooperation with local enterprises in the introduction of dual education in the profession of vocational education for automation technicians. On the one hand, this action is intended to contribute to better preparation of graduates to enter the labor market, and on the other hand, it at least partially reduces the school's needs in terms of purchasing technological aids, and thus reduces the costs of the education process. Ultimately, it is important that cooperation leads to a better adaptation of the educational offer to the needs of the labor market.

The introduction of education is made possible by the provisions of the regulation on practical vocational training, which states that practical classes are organized for students and juveniles in order to acquire the professional skills necessary to take up work in a given profession, and in the case of practical classes carried out by employers, including on the terms dual education

system - also in order to apply and deepen the acquired knowledge and professional skills in real working conditions¹².

3) Challenge

Expanding the educational offer at the technical secondary school level in the profession of automation technician to include the possibility for students to take practical classes with employers under the principles of a dual education system.

4) The solution has been introduced

Solution description:

At the Technical Secondary School of Electronics in Radom, practical education based on the principles of a dual education system is conducted in two forms:

- on **apprenticeships** in all professions educated at the technical level.

The number of weeks allocated for vocational training and the number of hours are specified in the core curriculum for vocational education. For example, in the profession of an automation technician, it is 8 weeks (280 hours).

Vocational internships are carried out in Radom companies with which the school has signed contracts, in which the employer undertakes to carry out the tasks included in the internship program.

The list of tasks (learning outcomes) in the internship program is established by school representatives in consultation with the company. In particular, the possibilities related to the machines and devices available to the employer were taken into account.

Practical classes end with an exam, the results of which are entered in the practice diary.

In the 2023/2024 school year, 454 students of the Electronics Technical Secondary School attending classes III and IV, studying six vocational education professions: automation technician, mechatronics technician, electronics technician, IT technician, ICT technician, programming technician, are to benefit from the offer of apprenticeships of Radom companies.

- during **practical classes** organized as part of **Laboratory of automation systems and installations** and **Studio of designing and programming automation devices and systems**.

The school division is divided into two groups. Each group, for one semester (variably), once a week participates in practical classes in the form of dual education at a company in Radom.

¹² Regulation of the Minister of National Education of February 22, 2019 on practical vocational training (Journal of Laws 2019, item 391, as amended), p. 1.

It is the employer's responsibility to provide students with protective clothing. The purchase costs of which are reimbursed up to 20% of the average monthly salary in the enterprise sector (per student).

For each student, the employer receives a training allowance in the amount of 10% of the average monthly salary in the enterprise sector, excluding any bonuses from profit in the fourth quarter of the previous year announced by the President of the Central Statistical Office. The basis for receiving it is that the company issues an accounting note at the end of the month.

During practical classes thematically related to the Laboratory of Automation Systems and Installations, the company's student has the opportunity to learn the basics of programming PLC controllers and designing automation systems. However, in the case of the Studio of Design and Programming of Automation Devices and Systems, the effects of education in the field of digital systems and industrial process visualization systems are implemented in enterprises.

Sources of funding:

The main sources of financing are financial resources from:

- educational subsidy (reimbursement of the purchase of work clothes and partial costs of remuneration of employees - practical vocational training instructors by the Education Department of the city of Radom);
- entrepreneurs' own funds (other costs: employment of a practical vocational training instructor, costs of materials, utilities: electricity, water, etc.);
- students' parents' own funds (e.g. covering the costs of students' travel to places of practical classes).

5) Benefits

For technical school students :

- getting to know the industry in which the student is studying¹³;
- gaining first professional experience¹⁴;
- access to modern machinery;

¹³ J. Kopacz: Vocational internships - everything you should know about them - GoWork.pl guide: <https://www.gowork.pl/poradnik/22/rozwoj-osobisty/praktyki-zdrowie-wszystko-co-powinienes-o-nich-Wiedziec/> (accessed: November 22, 2023).

¹⁴ M. Konczal: Vocational internship at a vocational school. Are they mandatory? How many hours of work experience per day do you need to complete? Education Zone, October 23, 2023: <https://strefaeducacji.pl/praktyki-zdrowie-w-szkole-branzowej-czy-sa-obowiazkowe-i-ile-sie-na-nich-zarobi-najwazjsze-informacje-o-praktykach/ar/c5-17978785> (access: November 22, 2023).

- students of technical secondary schools, in a real work environment, master the professional skills necessary to take up work in the profession the student is learning;
- enabling students to participate in education under the supervision of experienced employees¹⁵;
- the possibility of working on machines and devices that can be used after graduating from technical school;
- deepening the knowledge acquired during school classes;
- learning about technological processes in the enterprise;
- improving practical skills at various job positions;
- developing personal and social competences necessary to work in a team of people of different ages, with different levels of education and with different personal cultures;
- solving real problems encountered by employees performing their daily work;
- increasing the chance of obtaining a better mark on the practical exam confirming professional qualifications;
- gaining contacts that may help the student look for a job in the future;
- developing a sense of responsibility for the quality of work.

Benefits for the enterprise:

- establishing cooperation with a school providing education in vocational training, and thus implementing the idea of corporate social responsibility;
- advertising on school premises, thus increasing the company's recognition on the local labor market;
- acquiring potential staff in the future in accordance with the needs through the employment of graduates¹⁶;
- professional development of employees delegated to act as instructors of practical vocational training;
- shortening the adaptation period for newly hired employees who participated in practical classes held at the company;
- the opportunity to learn about the education of students in vocational education professions and the level of education of students in schools;

¹⁵ KGHM. Student internships: <https://kghm.com/pl/kariera/dla-uczniow/praktyki-uczniowskie> (accessed: November 22, 2023).

¹⁶ Student internship - Ministry of National Education and Science - Gov.pl portal: <https://www.gov.pl/web/edukacja/staz-uczniowski> (access: November 22, 2023).

- the opportunity to use the potential and energy of young students to develop the company¹⁷.

Benefits for the school:

- establishing direct contact with the company¹⁸;
- increasing the school's prestige and promoting it as an organizer of practical vocational training in a real work environment;
- involvement of employers in improving the curriculum and, as a result, better adapting it to the needs of the local labor market;
- obtaining financial or material support from the school in the form of donated equipment, machines and devices;
- the possibility of professional development for vocational education teachers by observing practical classes in which their students participate;
- better understanding of the needs of the local labor market and thus educating students in accordance with these needs and not only for exams confirming qualifications in vocational education professions;
- increasing the effectiveness of teaching and thus improving the passing rate of students in professional examinations;
- increasing the satisfaction of students and their parents.

Contact:

Konrad Witkowski, director of the Electronic School Complex. Heroes of Westerplatte Radom.

Wojciech Wojciechowski, manager of practical training at the Electronic School Complex. Heroes of Westerplatte Radom.

¹⁷ J. Strykowski: Organizing student and professional internships: a guide for employers - Aplikuj.pl: <https://www.aplikuj.pl/porady-dla-pracodawcow/1450/organowanie-praktyk-studenckich-i-powiedzowych-przewodnik-dla-employers#:~:text=For%20employer%C3%B3w%2C%20practice%20professional%20to%20chance%20for,supporting%20m%C5%82odych%20talent%C3%B3w%20i%20mo%C5%BCliwo%C5%9B%C4%87%20finding%20potential%20employee%C3%B3w.> (accessed: November 22, 2023).

¹⁸ An example of good cooperation between a vocational school and an employer: <https://www.ore.edu.pl/wp-content/uploads/2018/03/przyklad-dobrej-wspolpracyszkozy-wodziowej-z-pracowca-technikum-mechanical-nr-15.pdf> (accessed: November 22, 2023).

Sources:

1. KGHM. Student internships: <https://kghm.com/pl/kariera/dla-uczniow/praktyki-uczniowskie> (accessed: November 22, 2023).
2. Konczal M.: Vocational internships at a vocational school. Are they mandatory? How many hours of work experience per day do you need to complete? Education Zone, October 23, 2023: <https://strefaedukacji.pl/praktyki-zdrowie-w-szkole-branzowej-czy-sa-obowiazkowe-i-ile-sie-na-nich-zarobi-najwazjsze-informacje-o-praktykach/ar/c5-17978785> (access: November 22, 2023).
3. Kopacz J.: Vocational internships - everything you should know about them - GoWork.pl guide: <https://www.gowork.pl/poradnik/22/rozwoj-osobisty/praktyki-zdrowie-wszystko-co-powinienes-o-nich-Wiedziec/> (accessed: November 22, 2023).
4. Regulation of the Minister of National Education of February 22, 2019 on practical vocational training (Journal of Laws of 2019, item 391, as amended), p. 1.
5. Statute of the Technical Secondary School in the Electronic School Complex: https://www.elektronik.edu.pl/images/do_pobranie/statut/statut_zse_18_10_2023.pdf, (accessed: 20/06/2023).
6. Student internship - Ministry of National Education and Science - Gov.pl portal: <https://www.gov.pl/web/edukacja/staz-uczniowski> (access: November 22, 2023).
7. Website of the Electronic School Complex. Heroes of Westerplatte in Radom: <https://www.elektronik.edu.pl/>, (accessed: 20/06/2023).
8. Strykowski J.: Organizing student and professional internships: a guide for employers - Aplikuj.pl: <https://www.aplikuj.pl/porady-dla-pracodawcow/1450/organowanie-praktyk-studenckich-i-powiedzowych-przewodnik-dla-employers#:~:text=For%20employer%C3%B3w%2C%20practice%20professional%20to%20chance%20for,supporting%20m%C5%82odych%20talent%C3%B3w%20i%20mo%C5%BCliwo%C5%9B%C4%87%20finding%20potential%20employee%C3%B3w.> (accessed: November 22, 2023).

2.4. Łukasiewicz Research Network – Institute for Sustainable Technologies - national internships for students of vocational education

1) Institution

Since 1986, the Łukasiewicz Research Network – Institute for Sustainable Technologies has specialized in creating innovation in the field of machine construction and operation, technical safety and environmental protection, as well as developing model solutions for vocational education programs for students of vocational schools and continuous education and staff development for an innovative economy. and the transfer of advanced technologies for industrial applications¹⁹.

The Łukasiewicz – ITeE structure includes **the Vocational Education and Innovation Management Research Center**, where: addresses important and current research problems in the field of Polish and international work pedagogy, andragogy, intellectual capital of enterprises, behavioral economics in organizations and other scientific disciplines dealing with human problems in the work environment. The Center is a specialized organizational unit in the Łukasiewicz Research Network in the area of development of systems, models and tools supporting the integration of vocational education (formal, non-formal and informal learning) with the economy and labor market, as well as systems supporting the commercialization of innovative technologies and the dissemination and transfer of knowledge. One of such activities integrating the worlds of vocational education and the labor market was the coordination and organization of internships for students of schools providing education in vocational education professions.

2) Context

Łukasiewicz - ITeE from the beginning of its existence has been a place for apprenticeships and internships for students of vocational schools (currently vocational schools) as well as students and researchers of universities. During practical classes, trainees had the opportunity to learn about the activities carried out by individual organizational units. Some of the students, after completing their internships and going through the recruitment procedure, became employees of the institute.

In 2018, there was an opportunity to expand cooperation with schools providing education in vocational education professions. This opportunity was created by the launch of a series of

¹⁹ Łukasiewicz Research Network – Institute for Sustainable Technologies - website: <https://www.itee.lukasiewicz.gov.pl/> (access: November 30, 2023).

competitions in 2018 aimed at adapting vocational education and training to the needs of the changing economy under the Knowledge Education Development Operational Program²⁰.

3) Challenge

Preparation of a project application and implementation of a project aimed at developing model programs for the implementation of practical vocational training in the form of internships for students and organizing paid internships for students at the Institute and intermediation in the organization of internships for students in nearby enterprises.

4) The solution has been introduced

Solution description:

In the fourth quarter of 2018, the Ministry of National Education, under the Operational Program Knowledge Education Development, measures 2.15 Vocational education and training adapted to the needs of the changing economy, announced the first call for applications for the preparation of solutions for engaging employers in the organization of practical vocational training.

In accordance with the competition regulations²¹, the source of financing were funds from the Knowledge Education Development Operational Program, Priority Axis II Effective public policies for the labor market, economy and education, Measure 2.15. Vocational education and training adapted to the needs of a changing economy.

In terms of preparing solutions for involving employers in organizing practical vocational training, two types of actions could be taken:

- a) developing a quality framework for internships and traineeships for students pursuing practical training in enterprises, taking into account the European framework for professional internships,
- b) development of model programs of practical vocational training for professions at the technician qualification level.

The subject of the competition was to select one project for each of the 32 branches of vocational education. The project was aimed at developing model programs for the implementation of practical vocational training in the industry covered by the project and organizing paid internships for students.

²⁰ Website of the Knowledge Education Development Operational Program (POWER): <https://www.power.gov.pl/nabory/1-132/>, (accessed: November 30, 2023).

²¹ Competition regulations no. POWR.02.15.00-IP.02-00-001/18 (amendment of May 30, 2018): https://www.power.gov.pl/media/57670/Regulamin_powiedza_30.pdf, (access: November 30, 2023).

In the competition, the beneficiaries could be entrepreneurs or employers, social partners, scientific units, including research institutes, public and private, academic and vocational universities, non-governmental organizations or associations of non-governmental organizations, relevant to the industry in which the application was submitted. However, the competition regulations allowed for the applicant to implement the project independently or in a national partnership.

The activities undertaken as part of the project were aimed at supporting schools and educational institutions and, indirectly, students of vocational schools.

The model program for each occupational group included at least the following elements:

- 1) teaching content for each profession to be carried out in real working conditions, and in the case of cooperation between the school, the CP and the employer, also the content to be implemented in the CP,
- 2) organizational solutions for each profession in the implementation of practical classes, and in technical secondary schools and post-secondary schools also vocational training in real working conditions,
- 3) a template of the school-employer contract and a sample contract of the school with the CCP and the employer for a given industry,
- 4) the method of involvement of teachers, including teachers of practical vocational training and managers of practical education, in the implementation of practical classes, and in technical secondary schools and post-secondary schools also in vocational training, and in the case of the variant of cooperation between the school - ckp - employer, also in ckp,
- 5) principles of ensuring the quality of practical education provided by the employer, along with the proposed tool for their verification, enabling monitoring of the quality of practical education by all parties involved ²².

The Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom submitted two applications and obtained financing for the implementation of two projects:

- 1) "Student internship program for mechanical industry professions (MEC) implemented in the conditions of modern technological processes" (UDA agreement - POWR.02.15.00-00-2046/20-00, implementation period: from 01/09/2021 – 31/03/2023) ²³.

The main goal of the project was to develop student internship programs for students in two vocational education professions (mechanical industry), for which model student internship

²² Ibid., pp. 27-28.

²³ Student internship program for mechanical industry professions (MEC) carried out in the conditions of modern technological processes : <https://www.itee.lukasiewicz.gov.pl/projekty/krajowe?view=article&id=168&catid=89>, (accessed: November 30, 2023).

programs will be developed and piloted in practice in a technologically modern work environment.

This goal was achieved by implementing the following intermediate goals:

- development of a student internship program for the profession: 722307 Cutting machine operator;
 - o working on student internship programs for the profession: 311504 Mechanical technician;
 - conducting internships with employers in two professions selected for the pilot project based on approved internship programs and adopted organizational assumptions;
 - verification of internship programs and preparation of assumptions for the implementation of the developed internship program in schools providing training in professions for which student internships were organized at the national level, taking into account the national specificity of education and the labor market.
- 2) "Development of student internship programs carried out in an innovative work environment in the electronics and mechatronics industry" (UDA agreement - POWR.02.15.00-00-2004/20-00, Implementation period: from December 1, 2020 - December 31, 2022)²⁴.

The main goal of the project was to develop student internship programs for students in three vocational education professions (ELM industry), for which model student internship programs will be developed and piloted in practice.

This goal was achieved by implementing the following intermediate goals:

- development of a student internship program for the profession: 311408 Electronics technician
- development of student internship programs for the profession: 311504 Mechatronics technician.
- development of a student internship program for the profession: 311909 Automation technician
- conducting internships with the employer in three professions selected for the pilot, based on approved internship programs and adopted organizational assumptions.
- verification of internship programs and preparation of assumptions for the implementation of the developed internship program in schools providing training in professions for which student internships were organized at the national level, taking into account the national specificity of education and the labor market.

²⁴Development of student internship programs carried out in an innovative work environment in the electronics and mechatronics industry - project description:
<https://www.itee.lukasiewicz.gov.pl/projekty/krajowe?view=article&id=169&catid=19> (access: November 30, 2023).

As a result of the implementation of internship programs, materials were developed containing:

- legal aspects of vocational education;
- general assumptions for student internships carried out in a work environment under the conditions of modern technological processes;
- organizational assumptions of the student internship - number of hours, qualification requirements of internship supervisors in the company, exemplary equipment of workplaces;
- goals of the internship in the form of professional tasks;
- didactic map of the implementation of the internship program;
- internship program – pilot verified in enterprises;
- plan for implementing an internship in the company in the following order: job position, type of tasks performed, acquired skills;
- principles of ensuring the quality of student internships carried out by students with the employer;
- evaluation survey assessing the professional competences of a student-intern upon entry/exit - example.

on the project website²⁵, which you can use when organizing your own internships for students:

Annex 1. Template of the student internship contract (student, school and employer);

Annex 2. Internship regulations;

Appendix 3. Consent of the parent/legal guardian for the child's participation in a professional internship;

Annex 4. Individual internship program and schedule;

Appendix 5. Student internship log - example;

Appendix 6. Certificates of completing a student internship - template;

Annex 7. Principles of ensuring the quality of practical education;

Annex 8. Survey of the evaluation of the internship program by the internship supervisor in the company;

Annex 9. Diagnostic questionnaire - intern "Assessment of the quality of student internships" - example;

Appendix 10. Diagnostic questionnaire - employer "Assessment of the quality of student internships";

²⁵ Results of student internship projects developed at Łukasiewicz - ITEE: <https://www.itee.lukasiewicz.gov.pl/mat> and <https://www.itee.lukasiewicz.gov.pl/materialy> (access: November 30, 2023).

Appendix 11. Diagnostic questionnaire - school "Assessment of the quality of student internships".

It should be emphasized that internships for students organized as part of the projects, which go beyond the scope of practical vocational education organized for students of first-cycle vocational schools, technical schools and post-secondary schools, are intended to increase the scope of vocational internships included in the core curriculum for teaching a given profession. Vocational internships organized as part of practical vocational education concern students of first-cycle vocational schools and technical schools in which practical vocational education is not provided by employers or entrepreneurs due to the inability to finance the costs of such education.

The stages of project work included:

- 1) selection by the applicant (in a given case, a research institute in cooperation with enterprises) of experts and development of a model program for the implementation of practical vocational training, in cooperation with schools providing vocational education, practical education centers or vocational and continuing education centers where students sent for internships study ;
- 2) submitting the developed model to the assessment and verification of external experts who were selected by the intermediary institution (Ministry of National Education);
- 3) the institute responds to the external expert's comments and submits the corrected model for another expert assessment;
- 4) positive opinion from an external expert;
- 5) conducting a pilot of the model - organizing internships for students. During the pilot, it was checked whether all elements of the developed model could be used in school practice and, therefore, whether they could be recommended at the level of systemic solutions;
- 6) payment of remuneration to students for their internships and to instructors of practical vocational training - supervisors in companies;
- 7) transfer of the project results to all schools educating vocational training professions specified in the industry in which the project was submitted;
- 8) obtaining declarations from public vocational schools for young people about using the organizational solution developed in the project in the field of practical vocational training;
- 9) conducting an evaluation of the actions taken;
- 10) developing recommendations for changes to educational law.

Sources of funding:

The main source of financing was funds from the Knowledge Education Development Operational Program, Priority Axis II Effective public policies for the labor market, economy and education, Measure 2.15. Vocational education and training adapted to the needs of a changing economy.

5) Benefits**For pupils :**

- the possibility of taking advantage of an additional offer, apart from the applicable vocational education at school, during which he or she can complete an internship with an employer in the profession in which he or she is training;
- obtaining remuneration for an internship in the company;
- gaining professional experience in a real work environment;
- becoming familiar with the operation of the fleet of machines and devices available at the place of internship;
- taking on the role of an employee and being with other employees on the same terms;
- establishing relationships with other employees and developing personal and social competences;
- increasing the chances of finding employment after completing school education, provided that you prove yourself and are well assessed by the employer;
- relieving the household budget and meeting your own needs thanks to the salary you receive;
- improving practical skills at various job positions;
- increasing the chance of obtaining a better mark on the practical exam confirming professional qualifications.

Benefits for the enterprise:

- financial benefits - recruiting an employee whose remuneration for the duration of the internship is covered from the project funds and covering the costs of employing an employee delegated to act as a guardian - a practical vocational training instructor;
- benefits related to the influence on the internship program and the educational learning outcomes included in it - the employer is the party that actively participates in its development, thanks to which it has an influence on the selection of educational outcomes in the internship program, thus better adapting the program to the existing machinery;

- benefits related to the development of staff - this applies to supervisors of practical vocational training instructors who must fill gaps in their knowledge and skills to meet the requirements of students taking part in the internship;
- benefits related to the implementation of corporate social responsibility standards by taking into account social interests (schools, teachers and, above all, students);
- image benefits related to increased recognition of the company's brand in the local environment;
- long-term benefits related to acquiring a potential employee.

Benefits for the school:

- development of cooperation with enterprises that have not been involved in the development of practical classes for students of vocational schools in their plants so far, because the main obstacle was the lack of sources of financing for such projects;
- increasing the number of students who can complete internships in enterprises;
- organization of internships is an additional form of professional development of students going beyond the applicable hours of the student's education system in the vocational education profession (as a reminder, the student undergoes internships, e.g. during summer holidays, winter breaks, i.e. during periods free from studies);
- increasing the pass rate of students in the practical part of the exam confirming vocational qualifications;
- obtaining the cooperation of tutors - instructors of practical vocational training in enterprises, and thus eliminating staff shortages of specialists in the labor market;
- improving the school's image in the local environment, and thus increasing the interest of primary school graduates in choosing a school and profession;
- increasing competition among students choosing education in a profession in which the student can complete an internship, and thus attracting more talented students;
- involvement of employers in improving the curriculum and, as a result, better adapting it to the needs of the local labor market;
- increasing the level of satisfaction of students and their parents with the effects of education.

Contact:

Małgorzata Sołtysiak, specialist at the Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom.

Sources:

1. Development of student internship programs carried out in an innovative work environment in the electronics and mechatronics industry - project description :
<https://www.itee.lukasiewicz.gov.pl/projekty/krajowe?view=article&id=169&catid=19> (access: November 30, 2023).
2. Student internship program for mechanical industry professions (MEC) carried out in the conditions of modern technological processes :
<https://www.itee.lukasiewicz.gov.pl/projekty/krajowe?view=article&id=168&catid=89>, (accessed: November 30, 2023).
3. Competition regulations no. POWR.02.15.00-IP.02-00-001/18 (amendment of May 30, 2018):
https://www.power.gov.pl/media/57670/Regulamin_powiedza_30.pdf, (access: November 30, 2023).
4. Results of student internship projects developed at Łukasiewicz - ITeE:
<https://www.itee.lukasiewicz.gov.pl/mat> and <https://www.itee.lukasiewicz.gov.pl/materialy> (access: November 30, 2023).
5. Website of the Knowledge Education Development Operational Program (POWER):
<https://www.power.gov.pl/nabory/1-132/>, (accessed: November 30, 2023).
6. Łukasiewicz Research Network – Institute for Sustainable Technologies - website:
<https://www.itee.lukasiewicz.gov.pl/> (access: November 30, 2023).

2.5. Crafts, Dual and Vocational Education Support Center in Konin - foreign professional internships in Wielkopolska Wschodnia

1) Institutions

The Center for the Support of Crafts, Dual and Vocational Education in Konin is an organizational unit of the Greater Poland Voivodeship Government, established in October 2017. Like the other four centers in Kalisz, Leszno, Piła and Poznań, it carries out tasks related to three areas:

- promotion of vocational and craft schools as the so-called "first choice" among primary school students,
- broadly understood support for schools providing vocational education in achieving high educational outcomes and
- promotion of dual education among employers and other stakeholders of the vocational education sector and the labor market.

Starting from 2019, projects implemented under the Erasmus+ Program have become one of the main instruments of support for institutions providing vocational education.

In the financial perspective 2014-2020, the Center implemented two projects, and in the next period the programming was accredited in the program and is currently implementing the fifth project.

Below is a list of international projects completed and in progress:

- Through Portugal to the European labor market - support for vocational education in Wielkopolska Wschodnia (2019),
- Professionals open to Europe (2020),
- Europe open to professionals (2021),
- Professionally and culturally (2022),
- Mobile in Europe (2023).

The table below presents a summary of the implementation indicators of projects submitted in subsequent years of the call for applications.

The data in Table 1 show that the main beneficiaries of international projects are students and staff - teachers from schools providing vocational education in vocational education professions.

In total, 210 students and 60 staff representatives benefited from the financial support from the Erasmus+ program, and 24 mobilities were carried out for people supporting the implementation of projects from the formal and organizational side.

Table 1. Indicators of project implementation submitted by CWRKDiZ in Konin to the Erasmus+ Program

Recruitment	Number of student mobility	Number of staff mobility	Number of support people	Budget [PLN]
2019	62	0	8	633 702
2020	64	16	8	674 182
2021	24	17	2	290 990
2022	32	18	2	311 123
2023	thirty	9	4	355,000
TOGETHER	210	60	24	2,264,997

Source: own study.

2) Context

The vocational education and training sector experiences systemic problems related to the traditional and current economic structure of the subregion. Traditional directions of vocational education were closely related to the region's economy, which included the following industries: lignite mining, salt mining, machinery industry and agriculture. The practical education base in these schools was adapted to the above-mentioned fields of study. However, due to the economic transformation, new fields of study, desired on the market, were implemented, without providing an appropriate base for practical education. This is mainly the result of systemic omissions, which consisted primarily in failure to provide appropriate financing in this area, coming not only from local government sources (managing bodies), but also from state sources. Moreover, schools located in small towns struggle with difficulties in reaching large companies, because in these areas there are few companies operating in modern industries, and companies belonging to the small and medium-sized enterprise sector dominate. These factors make ensuring high-quality internships a significant challenge for schools providing training in vocational training professions. Trying to deal with it, representatives of these schools are trying to obtain attractive internship places in the region, e.g. in Poznań or Kalisz, but this involves high costs and organizational effort for parents.

Currently, the region is undergoing another transformation related to the phasing out of brown coal mining and the liquidation of coal-fired power plants. In 2018, the Adamów Brown Coal Mine and the Adamów Power Plant, located in Turek County, ceased operations. More open pit mines will be closed down in the near future and the energy industry intends to reorient itself

towards the so-called green energy. The slogan promoting the process of transformation of the subregion's economy and the future strategy is "Green Energy Valley".

3) Challenge

The main determinants and, at the same time, regional challenges for the development of the vocational education and training sector, taking into account educational policies, changes in the labor market, demography, globalization and technological development, as well as the specificity of the Wielkopolska Wschodnia subregion, include making practical teaching programs more attractive and adapting to the needs of the labor market, increasing digital accessibility, increasing mobility, creating networks and partnerships with employers and employers' organizations, internationalization of the vocational education sector and the ability to operate in diverse employee groups.

4) The solution has been introduced

Solution description:

A comprehensive response to the above-mentioned challenges was the implementation of international projects under subsequent editions of the Erasmus+ Program. This was undertaken by the Center for the Support of Crafts, Dual and Vocational Education, which should be emphasized that it is not an educational institution but, in accordance with the scope of its statutory activities, it cooperates with secondary schools providing vocational education in Wielkopolska Wschodnia. The center became a kind of intermediary that took over the burden of preparing the project application, organizing trips and settling the entire project.

In 2019-2020, two projects were implemented, covering a total of eight facilities. In the new financial perspective, the formula for implementing the Erasmus+ Program has changed, which enabled experienced units to obtain accreditation and thus obtain permanent access to financial resources.

In 2021, the Center developed, together with partners (schools, institutions involved in vocational education), the Internationalization Strategy - a document specifying the directions of the organization's international development and main goals for a five-year period.

One of the elements of the Internationalization Strategy is to build an open partnership that enables subsequent institutions to jointly implement projects and thus benefit from the benefits of the Erasmus+ Program.

Five projects managed to organize foreign professional internships in the following professions:

- IT specialist,
- logistics technician,

- forwarding technician,
- advertising technician,
- hotel technician,
- nutrition and catering services technician,
- car mechanic technician,
- Mechatronics technician,
- printing and computer graphics technician,
- surveyor technician,
- tourism organization technician,
- environment protection Technician.

Thanks to the accreditation, the composition of the project consortium has been significantly expanded and the number of cooperating institutions is 12.

The center has established partnerships with five host organizations in Portugal, Spain, Italy and Croatia. The internships, depending on the project, last two or three weeks and take place in enterprises with profiles adapted to the fields of youth education.

In accordance with applicable quality standards and previously good practice, young people receive comprehensive support before, during and after mobility.

Support highlights include:

- English language courses,
- pedagogical preparation,
- cultural preparation,
- an attractive cultural program in the country of mobility,
- assistance in developing a CV in the Europass format in Polish and English.

The projects implemented at the Center also created a unique opportunity for staff - teachers involved in vocational education and training - to participate in foreign training courses, unique in the subregion. School principals and vice-principals, practical education managers, as well as vocational teachers and career counselors took part in seven training sessions consisting in observing the work of their counterparts in education and training institutions abroad.

The Center implements its projects in accordance with the principles of ECVET (European Credit Union for Vocational Education and Training), which means that the system of agreeing,

assessing and validating learning outcomes acquired during internships involves cooperation between sending institutions and host enterprises at every stage of internship implementation.

Sources of funding:

The projects are financed from the Erasmus+ 2014-2020, Erasmus+ 2021-2027 Program funds.

5) Benefits

Benefits for employers:

- acquiring experienced employees;
- greater openness of potential employees to issues of innovation, communication, teamwork and diversity.

Benefits for students:

- acquiring practical skills related to work performed in the profession;
- getting to know the work culture in foreign organizations;
- learning from personal experience;
- improving self-esteem;
- increasing moral, legal and financial responsibility for actions taken;
- increased competence in planning your own development;
- building independence and autonomy of individuals and groups;
- learning about job offers on European markets;
- increasing motivation to learn.

Benefits for the school:

- promotion of the institution's educational offer;
- increasing the school's prestige;
- internationalization of the facility;
- improving the quality of education by improving the professional qualifications of staff participating in mobilities;
- obtaining attractive internship places;
- increase/development of staff competences in project management;
- increasing knowledge about ECVET.

Contact:

Arleta Jaśniewicz, Deputy Director of the Center for the Support of Crafts, Dual and Vocational Education in Konin, Erasmus+ project manager.

Sources:

- 1) Website of the Crafts, Dual and Vocational Education Support Center in Konin. Legal status: <https://cwrkdiz-konin.pl/bip/p,17,status-prawny> (access: December 14, 2023).
- 2) Resolution No. XXXV/658/21 of October 25, 2021 amending the resolution on the establishment of the Crafts, Dual and Vocational Education Support Center in Konin Legal status - BIP - Crafts, Dual and Vocational Education Support Center in Konin (cwrkdiz-konin.pl) (access: December 14, 2023).
- 3) Website of the Center for the Support of Crafts, Dual and Vocational Education in Konin: <https://www.cwrkdiz-konin.pl> (accessed: December 15, 2023).
- 4) Internationalization Strategy of the Crafts, Dual and Vocational Education Support Center in Konin, Konin, 2020.
- 5) Documentation of Erasmus+ projects (contracts, reports, course logs).

2.6. Craft Support Center, Dual and Vocational Education in Konin – Professionals' Night

1) Institutions

Professionals' Night is a cyclical event organized by five Crafts, Dual and Vocational Education Support Centers located in Poznań, Kalisz, Leszno, Konin and Piła. The centers are organizational units of the Greater Poland Voivodeship Government and were established in 2017-2018.

The Center's tasks are related to three areas:

- promotion of vocational and craft schools as the so-called "first choice" among primary school students,
- broadly understood support for schools providing vocational education in achieving high educational outcomes;
- promotion of dual education among employers and other stakeholders of the vocational education sector and the labor market.

The statutory tasks of the Centers are defined broadly, but in practice they focus on various educational support for students, managerial and teaching staff, and vocational education and training institutions located in the area of operation of a given Center.

Initiatives supporting vocational education and training include the following categories of activities:

- workshops in the field of educational and career counseling, orientation and pre-orientation at various levels of education;
- vocational competitions and games and other events promoting vocational education;
- scientific conferences and seminars;
- participation in local and regional educational fairs;
- research and publications on vocational education and the labor market;
- implementation of projects financed from external sources, including the Erasmus+ Program;
- running Career Advisor Clubs;
- training for teachers and career advisors.

An important element of the activities of the Crafts, Dual and Vocational Education Support Centers is cooperation with employers and entrepreneurs, crafts, bodies running vocational education institutions and other stakeholders of the vocational education sector.

The creation of Crafts, Dual and Vocational Education Support Centers is a unique initiative on a national scale. To date, similar organizations have not been established outside the Greater Poland Voivodeship.

2) Context

Over the years, vocational education has been struggling with numerous problems, including a shortage of vocational teachers, poor cooperation with employers and low prestige, especially in the case of education in stage I vocational schools. Additionally, poorly developed educational and career counseling in primary schools means that the choice of education field by young people is dictated by considerations other than the interests and personal predispositions of the graduate (the influence of the peer group, pressure and ambitions of parents, communication accessibility, etc.).

Therefore, it is necessary to conduct extensive activities promoting vocational education among primary school students. One of the examples carried out in the Greater Poland Voivodeship is **the Night of Professionals**. This is an event during which students, parents, teachers, career advisors, craftsmen and employers meet.

3) Challenge

Promotion of vocational education and knowledge about professions and the local labor market among primary school students in order to increase the accuracy of choosing the field of education.

4) The solution has been introduced

Solution description:

Professionals' Night is an event held in October, starting from 2018. It takes place simultaneously in five locations. The Craft, Dual and Vocational Education Support Centers together with a selected vocational education facility in the subregion are responsible for organizing the event.

So far, six editions of Professionals' Night have been held. Starting from 2020, the organization of events is accompanied by the motto:

- 2020 – Greater Poland in the competition network,
- 2021 – Hybrid-professional,
- 2022 – Professional power,
- 2023 – Competence Hub.

In 2020, the Professionals' Night was held online due to restrictions resulting from the Covid-19 pandemic.

During the event, the host institution and other institutions from the subregion can present their educational offer in a unique way. In addition to visiting professional studios, students can take part in numerous professional workshops and competitions. Moreover, thanks to the participation of numerous employers, they can learn about the specificity of professions sought on local labor markets.

The event is held under the patronage of the Marshal of the Greater Poland Voivodeship.

Sources of funding:

The event is financed from the budget of the Crafts, Dual and Vocational Education Support Centers and the own funds of educational institutions and sponsors.

5) Benefits

Benefits for employers:

- increase in the company's prestige in the region;
- establishing direct relations with the vocational education sector;
- company promotion;
- promotion of new technologies;
- sharing knowledge in the field of new technologies and industry development prospects.

Benefits for students:

- getting to know the educational offer of local institutions offering vocational education;
- getting to know local enterprises and the scope of their activities;
- increasing awareness of your professional choice;
- the opportunity to learn about the specifics of work in professions sought on the local market;
- learning about the requirements for future candidates for school;
- development of interpersonal competences and learning relationships in secondary school;
- better assessment of one's own interests and competences;
- improving self-esteem;
- increasing motivation to learn.

Benefits for the school:

- promotion of the institution's educational offer;
- increasing the school's prestige;
- support for the school recruitment process;
- creating lasting relationships with key employers on the local labor market;
- strengthening relations between vocational education institutions and other education sector stakeholders, including universities.

Contact:

Andrzej Budny, Director of the Center for Support of Crafts, Dual and Vocational Education in Konin.

Sources:

- 1) Statute Website of the Center for Support of Crafts, Dual and Vocational Education in Konin: Legal status - BIP - Center for Support of Crafts, Dual and Vocational Education in Konin (cwrkdiz-konin.pl) (accessed: December 14, 2023).
- 2) Resolution No. XXXV/658/21 of October 25, 2021 amending the resolution on the establishment of the Crafts, Dual and Vocational Education Support Center in Konin Legal status - BIP - Crafts, Dual and Vocational Education Support Center in Konin (cwrkdiz-konin.pl) (access: December 14, 2023).
- 3) Website of the Center for the Support of Crafts, Dual and Vocational Education in Konin: <https://www.cwrkdiz-konin.pl> (accessed: December 15, 2023).
- 4) Website of the Center for the Support of Crafts, Dual and Vocational Education in Kalisz: <https://www.cwrkdiz.kalisz.pl> (accessed: December 15, 2023).
- 5) Website of the Center for the Support of Crafts, Dual and Vocational Education in Poznań: <https://www.cwrkdiz.poznan.pl> (accessed: December 15, 2023).
- 6) Website of the Center for the Support of Crafts, Dual and Vocational Education in Leszno: <https://www.cwrkdiz.leszno> (accessed: December 15, 2023).
- 7) Website of the Center for the Support of Crafts, Dual and Vocational Education in Piła: <https://www.cwrkdiz.pila> (accessed: December 15, 2023).

2.7. Łukasiewicz Research Network – Institute for Sustainable Technologies and the Construction School Complex K. Wielkiego - professional skills competition "Dry construction systems Radom 2021"

1) Institution

Employees of the Łukasiewicz Research Network – Institute for Sustainable Technologies (project coordinator) and the Construction School Complex were involved in the organization of the professional skills competition "Dry construction systems Radom 2021". Casimir the Great in Radom (co-organizer of the competition).

The Institute has been cooperating with the Construction School Complex since the 1990s. Casimir the Great in Radom. ZSB is one of the few in the city, province and country that began its teaching and educational activities when Poland regained independence and the establishment of the Second Polish Republic²⁶. Currently, the structure of the Team includes²⁷:

- 1) Technical secondary schools where students have the opportunity to train in the following professions: construction technician, roofing technician, surveying technician, environmental protection technician, sanitary engineering technician, finishing works technician in construction, road construction technician;
- 2) First Level Vocational School, which offers students training in the following professions: roofer, bricklayer and plasterer; fitter of sanitary networks and installations, fitter of construction and finishing works in construction, carpenter;
- 3) Secondary Vocational School, where students have the opportunity to train in the following professions: construction technician, finishing works technician in construction, sanitary engineering technician.

2) Context

In 2019, the Łukasiewicz Research Network - ITeE in Radom started the implementation of an international project titled "WeRskills - information and consultation platform supporting the process of acquiring talents to participate in skills competitions at the national and European level" (project number: 2019-1-PL01-KA202-065107). The project received funding under the Erasmus+ program in the Vocational education and training sector under Action 2. Cooperation for innovation and good practices.

²⁶ Complex of Construction Schools named after Casimir the Great – history, website: <https://zsb.radom.pl/historia/> (accessed: December 5, 2023).

²⁷ Complex of Construction Schools named after Casimir the Great – recruitment, website: <https://zsb.radom.pl/nabor/> (access: December 5, 2023).

Łukasiewicz – ITeE was the project coordinator, and the partnership included the following institutions:

- 1) Łukasiewicz Research Network – Institute for Sustainable Technologies, Poland (project coordinator);
- 2) Confederation of Construction and Real Estate (KBiN), Poland (partner);
- 3) National Federation of Hungarian Construction Contractors (EVOSZ), Hungary (partner);
- 4) Foundation for the Development of Education and Innovation (FERI), Poland (partner);
- 5) Education and Information Technology Center (EDITC LTD), Cyprus (partner).

The project was implemented in the period from November 2019 to April 2022.

The aim of the project was to develop a recruitment model for global professional skills competitions, promote professional skills through the exchange of experiences and international cooperation, develop national skills competitions in cooperation with industry organizations, promote vocational education and training, and increase the motivation of young people to learn a profession.

One of the activities was the organization of a professional skills competition entitled: "Dry construction systems Radom 2021" based on the procedures of the international WorldSkills and EuroSkills competitions. For its needs, Łukasiewicz - ITeE chose the Construction School Complex as a partner. Casimir the Great in Radom.

Including professional skills competitions in curricula and internships motivates students to improve their skills, making the learning process more interesting. Competitions are a break from the school routine. They give young people satisfaction, self-confidence and can help them set clear goals for learning and achievement. They also change the way young people and parents perceive vocational education because they raise its status and help in choosing a career path. Many VET institutions in Europe use skills competitions to build positive and credible learning pathways that strengthen students' skills and strongly connect the world of business and work with schools and other vocational education institutions ²⁸.

²⁸M. Kowalska: Professional skills competitions as a path to perfection. MyZawodowcy: <https://myzawodowcy.pl/konkursy-umiejtnosci-powiedzowych-droga-do-powiedzlosci/> (access: December 5, 2023).

3) Challenge

Preparing organizers, experts, developing competition documentation and organizing, at the local level, in cooperation with a school providing education in construction professions, a nationwide professional skills competition based on the procedures of the international WorldSkills and EuroSkills competitions.

4) The solution has been introduced

Solution description:

As part of the international project Łukasiewicz – ITeE, together with project partners, they developed:

- 1) organizational documentation necessary to conduct a professional skills competition based on the procedures of the international WorldSkills and EuroSkills competitions;
- 2) sets of practical tasks necessary to conduct a drywall competition based on the procedures of the international WorldSkills and EuroSkills competitions.

The organizers of the competition - Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom and the Confederation of Construction and Real Estate in Warsaw found it justified to conduct the competition on the premises and with the support of teachers of the Construction School Complex. Casimir the Great in Radom.

Invitations to participate in the competition were sent to over 150 schools and institutions providing education in construction industry professions.

During the first stage, the potential participant was responsible for making a plasterboard wall in accordance with the submitted design, documenting the process in the form of photos and a video, and documenting the final effect. Based on the documented data sent, the jury selected 9 finalists who entered the actual competition organized at the Construction School Complex in Radom on October 21-22, 2021.

The finals of the competition were practical in nature. First of all, the competitors had to demonstrate above-average professional skills, but the victory was also determined by the ability to work under pressure, setting priorities, coping with stress and disappointment, quick reaction and accuracy. The competition showed the students their professional possibilities. It also made them aware of what skills are needed on the labor market today²⁹.

²⁹ M. Kowalska: Drywall Systems Competition: the search for the best is over. MyZawodowcy: <https://myzawodowcy.pl/systemy-suchej-zabudowy-radom-2021-pszunie-najlepszych-juz-zakonczone/> (access: December 5, 2023).



Photo 1. Photo from the competition "Dry construction systems Radom 2021"

Source: <https://mypowiedzowcy.pl/systemy-suchej-zabudowy-radom-2021-pszunie-najlepszych-juz-zakonczone/> (access: December 5, 2023)

Representatives of companies from the construction industry were also involved in organizing the competition and provided, among others: building materials, lent tools, sponsored prizes.

It should be mentioned that the national competition "Dry Construction Systems Radom 2021" was the first such initiative in Poland. The honorary patronage of the competition was taken by the Mayor of Radom. The event was accompanied by the conference "Skills Leaders - synergy of schools, crafts and enterprises".

Sources of funding:

The main source of financing were funds from the Erasmus+ Vocational Education and Training Program³⁰ and funds from sponsors.

5) Benefits

For pupils :

- establishing relationships with other students and teachers;
- identifying your strengths and weaknesses;
- increasing motivation for professional development;
- shaping such character and personality traits as commitment, perseverance, responsibility;
- increasing professional competences and better preparation for the exam confirming professional competences;
- acquiring contacts with potential employers (building a network of contacts);
- arousing the spirit of competition.

³⁰ Foundation for the Development of the Education System: website of the Erasmus+ Vocational Education and Training Program: <https://erasmusplus.org.pl/sektory?sector=2> (accessed: October 16, 2023).

Benefits for the enterprise:

- company promotion;
- participation in students' professional development, which may translate into the preparation of future employees;
- participation in the process of adapting education to the labor market.

Benefits for the school:

- professional development of a teacher - guardian of a student participating in a professional skills competition;
- increasing the school's reputation, which may translate into the number of potential primary school graduates applying for admission to vocational schools in Poland;
- increasing job satisfaction of teachers - guardians of students participating in the professional skills competition;
- establishing cooperation with other schools participating in the competition.

Contact:

Małgorzata Kowalska, specialist at the Łukasiewicz Research Network – Institute for Sustainable Technologies in Radom.

Sources:

1. Foundation for the Development of the Education System: website of the Erasmus+ Vocational Education and Training Program: <https://erasmusplus.org.pl/sektory?sector=2> (accessed: October 16, 2023).
2. Kowalska M.: Drywall Systems Competition: the search for the best is over. MyZawodowcy: <https://myzawodowcy.pl/systemy-suchej-zabudowy-radom-2021-pszunie-najlepszych-juz-zakonczone/> (access: December 5, 2023).
3. M. Kowalska: Professional skills competitions as a path to perfection. MyZawodowcy: <https://myzawodowcy.pl/konkursy-umiejetnosci-powiedzowych-droga-do-powiedzlosci/> (access: December 5, 2023).
4. Complex of Construction Schools named after Casimir the Great – history, website: <https://zsb.radom.pl/historia/> (accessed: December 5, 2023).
5. Complex of Construction Schools named after Casimir the Great – recruitment, website: <https://zsb.radom.pl/nabor/> (access: December 5, 2023).

2.8. Mechanism of tripartite cooperation between the Self-Government of the Wielkopolska Voivodeship, schools providing vocational education and a university on the example of the project "Time of BIS professionals - vocational Wielkopolska"

The Greater Poland Voivodeship has been taking steps to develop vocational education for years, involving various labor market and education institutions. The aim of such activities is to best adapt the educational market to the requirements and needs of the labor market. Increasing the competences of pupils and students and the participation of adults in continuing education, modern infrastructure for education in accordance with the mission and vision of the Education Development Strategy "Wielkopolska Education 2023-2030" is the goal of the Local Government's activities for the development of vocational education. Cooperation with universities and schools operating in the region contributes to the best possible preparation of pupils and students for the contemporary needs of the labor market, especially for the intensive changes taking place in this market. Focusing on specialized vocational education, equipping school vocational training laboratories with modern equipment and teaching aids, cooperation with universities and continuous work with students of vocational schools appear to be the most important challenges for education. An example of such activities of the Provincial Government was the non-competitive project implemented from 2015 to June 30, 2023 as part of WRPO 2014+ by the Department of Education and Science of the Marshal's Office of the Greater Poland Voivodeship in Poznań (Lead Partner) in partnership with the Poznań University of Technology. "Time of BIS professionals - professional Wielkopolska", which is a continuation of projects carried out for 10 years;

- "Wielkopolska monitoring and forecasting system" (in 2010-2012),
- "Time of professionals - Wielkopolska vocational education" (in 2012-2015),
- "Time of BIS professionals - professional Wielkopolska" (in 2015-2023),
- "Time of BIS professionals - professional Wielkopolska - practices and internships" (in 2019-2023).

The main goal of the project was to improve the quality of vocational education in Greater Poland in terms of better adapting students' competences to the needs of the labor market and adapting teachers' competences in terms of their better preparation for vocational education, as well as equipping schools and vocational education institutions with equipment and teaching aids.

The aim of the project was also to permanently rebuild the vocational education system by identifying the demand for vocational education with the needs of the local labor market as part of

close cooperation between the Self-Government of the Wielkopolska Voivodeship, the Poznań University of Technology and secondary schools participating in the project. Ultimately, the project recruited 84 technical schools in Greater Poland.

As part of the project:

- students completed internships with employers and completed specialized classes in laboratories,
- teachers received support in the form of courses/studies/trainings/internships allowing them to acquire qualifications or competences,
- vocational education institutions were equipped with equipment and teaching aids for vocational education workshops,
- The Craft Guilds have received support in the form of electronic teaching materials for professions where learning takes place in crafts.

The internship offer was addressed to students of technical schools who signed up for the project and were carried out in a given profession with a given employer. Establishing cooperation between the student and the employer showed how to smoothly transition from the education stage to the employment stage. The internships were also an opportunity to create lasting connections between schools and employers. The most popular professions in which internships were organized included:

- techniques economist,
- IT specialist,
- logistics technician,
- Mechatronics technician,
- nutrition and catering services technician,
- advertising technician,
- construction technician and
- sales technician.

Specialized classes in laboratories complemented the internship program. This was a form of support highly appreciated by students, teachers and employers alike.

The classes and laboratory equipment were prepared based on consultations with employers. Specialized classes in laboratories were addressed to students of the last years of technical secondary schools, and were conducted in twelve professions:

- IT specialist,
- ICT technician,

- mechanical technician,
- Mechatronics technician,
- electrical technician,
- electronics technician,
- techniques economist,
- sales technician,
- logistics technician,
- forwarding technician,
- advertising technician,
- graphic and digital printing technician.

Local government units, universities, employers and individual schools participating in the project co-created the Wielkopolska Sieć Edukacyjno-Gospodarcza (WSEG) (Wielkopolska Sieć Edukacyjno-Gospodarcza) (WSEG), which is part of the Zawodowcy (SZ) System together with the website system.zawojcy.org, which is regularly updated in the voivodeship. The platform is a comprehensive solution supporting the operation and development of WSEG. It is an IT tool integrating labor market institutions and entities responsible for vocational education, which collects knowledge on the one hand about the competency requirements in the labor market and, on the other hand, about the potential of competencies available among potential candidates for work, apprenticeships or internships. Knowledge and information collected and constantly updated on the platform are made available free of charge to all interested parties, in particular entities cooperating within WSEG as well as students and graduates. The platform is also a rich source of reports and analyzes regarding the labor market and vocational education.

The main tasks of the Professional System include:

- supporting schools based on existing modules of the Professions System in the field of: measuring changes in students' skills in the project, handling apprenticeships and internships, developing knowledge regarding career counseling, supporting communication between students and employers,
- preparing reports and in-depth analyzes on the labor market using data from the Zawodowcy System,
- creating reference models of workplaces at employers and improving dictionaries (describing employers' needs) and functionality of the existing IT platform in order to simplify operation and adapt to the expectations and changing needs of users,

- development and dissemination of the process of measuring competences among students undergoing vocational education,
- activating employers and involving them in the process of advising students on the directions of professional development.

As a result of cooperation with enterprises within the framework of the project, reference models were developed for 157 job positions related to 36 professions in which students from schools cooperating in the project were educated. Reference models are model descriptions of competency requirements for job positions, the development of which was based on job descriptions from at least three companies. The description of the required skills and knowledge for these positions has been prepared using the language of enterprises. Job descriptions available on the platform indicate the requirements that schools in Greater Poland should meet in order to meet the requirements for job positions in cooperating enterprises.

Based on data from the Zawodowcy System, reports and in-depth statistical analyzes regarding the labor market were also developed.

Due to the very high demand of the labor and educational markets for activities carried out under the presented project, work was undertaken on its next edition under the European Funds for Greater Poland 2021-2027 perspective. The tasks will be continued in the project: "Time of Professionals for Greater Poland", which will also be addressed to schools providing vocational education in the Greater Poland Voivodeship, their students and teachers.

The project provides for a system of interrelated activities, the main of which are:

- conducting additional specialized classes in laboratories (for 6,800 students),
- implementation of internships (for 220 students),
- providing support for students by building self-awareness of their skills in correlation with the competences required on the regional labor market, and
- support enabling teachers to acquire qualifications or competences.

The effect of the project will primarily be the improvement of students' competences in thematic areas consistent with current technological standards, the improvement of competences or acquisition of qualifications by teachers of schools providing vocational education, as well as the building of lasting relationships between vocational schools, local governments, universities and enterprises.

The next edition of the project will be implemented in partnership: the Wielkopolska Voivodeship, represented by the Department of Education and Science of the Marshal's Office of the Wielkopolska Voivodeship and the Poznań University of Technology.

Planned project implementation time: from July 1, 2023 to June 30, 2029.

Contact:

Dorota Kinal, Director of the Department of Education and Science of the Marshal's Office of the Greater Poland Voivodeship in Poznań.

Sources:

1. Website of the project "Time of Professionals for Wielkopolska" - system.zdrowie.org:
<https://www.zdrowie.org> (accessed on January 21, 2024).
2. Website of the "Professionals' Time for Wielkopolska" project: <https://www.zawodowcy.org>
(accessed on January 21, 2024).

2.9. Center for Support of Crafts, Dual and Vocational Education in Konin - European funds for Greater Poland 2021-2027 - support for vocational education

1) Institution

The institution announcing the recruitment under the European Funds for Greater Poland 2021-2027 Program was the Marshal's Office of the Greater Poland Voivodeship - Department of Regional Program Implementation. In some cases, in cooperation with the Regional Development Agency in Konin (applies to projects for Wielkopolska Wschodnia).

2) Context

Preliminary information on the possibility of co-financing activities related to vocational education, career counseling and cooperation between schools and employers can be found in the Schedule of calls for funding applications for the Schedule of calls for funding applications for the European Funds for Wielkopolska 2021-2027 Program, which is published on the Website. Greater Poland Regional Operational Program³¹. Last updated on December 23, 2023.

3) Challenge

Searching for potential sources of financing in the years 2023-2027 for projects aimed at the development of vocational education, including cooperation between schools providing education in vocational education professions and employers.

4) The solution has been introduced

Solution description:

The analysis of the provisions of the Application Recruitment Schedule for the European Funds for Greater Poland 2021-2027 Program shows that projects aimed at the development of vocational education in Greater Poland, including Wielkopolska Wschodnia, will be able to be co-financed under:

- 1) Priority 5. European funds supporting social infrastructure for the inhabitants of Greater Poland (ERDF), Measure 5.1 Improving equal access to high-quality education, training and lifelong learning through support for educational infrastructure (cs 4.ii), in which in the period October 30, 2023 – January 19, 2024, the recruitment of projects aimed at supporting

³¹ Schedule of the call for applications for the European Funds for Wielkopolska 2021-2027 Program, effective from December 21, 2023: <https://wrpo.wielkopolskie.pl/dowiedz-sie-wiecej-o-programie/fundusze-europee-dla-Wielkopolski-2021-2027/harmonogram-naborow-wnioskow-2> (access: December 22, 2023).

the educational and training infrastructure of vocational schools, centers and institutions providing vocational and continuing education is planned, including:

a) construction (only in justified cases), expansion, superstructure and equipping with a teaching base of institutions providing vocational education aimed at creating and developing workshops/practical education studios in industries consistent with the needs of the labor market, including smart specializations defined at the regional level, and to support teachers' professional development (as part of the project);

b) infrastructure investments related to improving the accessibility of educational facilities for people with special educational needs (supported by a thorough needs analysis).

Applicants may be:

1. Public administration.
2. Science and education institutions.
3. Social organizations and religious associations.

Project implementation area: Greater Poland.

- 2) Priority 6. European funds for Greater Poland with a stronger social dimension (EFS+), Measure 6.7 Pre-school, primary education and vocational education (cs 4.f), in which the recruitment of projects focused on education is planned in the period 23/02/2024 - 08/03/2024 inclusive.

Applicants may be:

1. Public administration.
2. Enterprises.
3. Enterprises pursuing public goals.
4. Social partners.
5. Social organizations and religious associations.
6. Science and education institutions.

Project implementation area: Greater Poland.

- 3) Priority 10. Just Transformation of Wielkopolska Wschodnia, Measure 10.1 Labor market, education and active society supporting the transformation of the economy (cs 6.i), in which the recruitment of projects aimed at supporting vocational education and consulting is planned in the period 15/12/2023 - 12/01/2024 educational and professional.

Applicants may be:

1. Institutions of science and education.
2. Public services.

3. Social organizations and religious associations.
4. Public administration.
5. Enterprises.

Project implementation area: Wielkopolska Wschodnia.

4) Priority 10. Just Transformation of Wielkopolska Wschodnia, Measure 10.7 Infrastructure for an active society, education and revitalization supporting the transformation of the economy (CS 6.i), in which in the period 30/10/2023 - 19/01/2024 the recruitment of projects is planned to be aimed at:

1. Infrastructure for vocational training of young people.
2. Infrastructure of vocational education for adults.
3. Expansion, reconstruction, superstructure, renovation, adaptation of the existing infrastructure of industry-specific Vocational Education Centers and Vocational and Continuing Education Centers or other entities carrying out tasks consistent with CKZ and CKZiU, along with the necessary equipment, including modern equipment or teaching aids and tools TIC.

Applicants:

1. Public services.
2. Public administration.
3. Social organizations and religious associations.
4. Science and education institutions.

Project implementation area: Wielkopolska Wschodnia.

Sources of funding:

The main source of financing is funds from the European Funds for Greater Poland 2021-2027 Program.

5) Benefits

For pupils:

- possibility of free participation in project activities addressed to young people. It should be emphasized that these activities usually go beyond the offer of compulsory education;
- in the case of purchasing technological equipment as part of the project, the student will be able to improve their skills using it;
- development of personal and social competences through participation in the project.

Benefits for the enterprise:

- the ability to participate in project activities, often not requiring the involvement of your own financial resources;
- expanding the scope of cooperation with schools providing education in vocational education professions;
- improving the company's image on the local labor market;
- gaining experience in implementing joint projects with schools.

Benefits for the school:

- tightening cooperation with employers;
- the possibility of obtaining funds for the implementation of activities related to the improvement of vocational education and career counseling;
- organization of additional extracurricular activities for students, including practical classes in companies;
- development of career counseling;
- equipping workshops and studios where practical classes are conducted for students;
- development of students' personal and social competences;
- improving the image of the school in the local environment and thus increasing the interest of students - primary school graduates in choosing a school and a profession;
- increasing competition among students choosing education in a profession in which the student can complete an internship, and thus attracting more talented students;
- increasing the level of satisfaction of students and their parents with the effects of education.

Contact:

Arleta Jaśniewicz, deputy director of the Center for the Support of Crafts, Dual and Vocational Education in Konin.

Sources:

1. Schedule of the call for applications for the European Funds for Wielkopolska 2021-2027 Program, effective from December 21, 2023: <https://wrpo.wielkopolskie.pl/dowiedz-sie-wiecej-o-programie/fundusze-europee-dla-Wielkopolski-2021-2027/harmonogram-naborow-wnioskow-2> (access: December 22, 2023).

2.10. Oslo City Council's strategy to increase the number of students graduating from secondary school

1) Institution

Oslo City Council has approved the City Council's Strategy to Increase the Number of Upper Secondary Graduates, which aims to:

1. Continue to develop and expand the offer with alternative and tailored training programs and educational resources.
2. Identifying and eliminating the causes of students' absence from school and providing them with better living conditions.
3. Developing a support system at school that takes into account the trauma that students encounter in their everyday lives.
4. Developing a training offer tailored to the students' level and providing support for students who stay in Norway for a short time, including strengthening language training.

2) Context

Oslo City Council's student enrollment strategy is a starting point for strengthening the participation of young people with low academic achievement and high rates of absenteeism in secondary education in Oslo. The aim of the strategy is to increase the percentage of people who successfully complete vocational education (currently less than 50%), which will provide these people with greater opportunities in professional and social life, prevent young people from participating in social exclusion and criminal groups, and reduce the burden on social services. and more importantly, it will provide Oslo with access to qualified professional staff. Norwegian statistics indicate a strong increase in the demand for skilled workers over the next 20 years. At the same time, the city is focused on development. To build the city of the future, meet the requirements of industry, ensure the development of the green transformation and with good quality of municipal services, excellent specialist knowledge and a qualified workforce will be required.

A holistic approach to secondary education is based on management principles aimed at equalizing social differences and increasing the trust of pupils and students in educational institutions in order to reduce the level of student absenteeism and increase the chances of completing upper secondary education.

3) Challenge

The Oslo City Council fears that the current school system, with its emphasis on tests and competitions, will result in an outflow of young people from the education system.

The city council will therefore present a separate program on learning motivation, together with efforts to better facilitate a more practical, active and varied daily school life, especially at the level of early education. Increased student motivation is a key factor, a prerequisite for increased learning and development ambition for all students.

4) The solution has been introduced

Solution description:

- 1) Actions are taken to ensure that primary school students participate in classes and are prepared for the two main educational paths (vocational education path and study path) by working with major subjects adapted to the student's preferences and introducing career counseling in primary school, but not in the last grade, and from the very beginning of education.
- 2) The school works closely with students and their legal guardians, recognizes their problems and strengthens them so that students do not give up learning at subsequent stages of education. The school responds to student problems, both academically and in private life. The education system, where great emphasis is placed on tests and competitions, causes the outflow of young people from the education system. The teaching content in upper secondary education should be developed (adapted) in a decentralized manner to the needs of individual students and the local labor market in accordance with the principle of focusing on practical education and the achievement of goals in future professional work.
- 3) The educational offer is being developed and expanded to include alternative training programs and educational resources tailored to students' needs.
- 4) The strategy assumes the creation of the so-called "a school bag for professional life", which requires close cooperation between schools implementing joint projects that influence students' professional careers.
- 5) Creation of the so-called summer school, workshops providing career advice and good educational choices for young people and parents, which will result in a guarantee of a better career choice.
- 6) Finding the causes of absence from school and trying to eliminate them, thus providing students with better living conditions.

- 7) The vocational education and training system is based on a high level of trust among stakeholders, which creates a sense of safety at school for young people. The cooperation concerns institutions supporting student development at every stage of education. School employees are interested in supporting students and solving their problems both at school and in family and social life.
- 8) The school must be flexible enough and friendly to young people to enable them to deepen their specialist knowledge within the chosen path or change it during education and provide practical vocational training.
- 9) Already qualified workers, students will play an important role in ensuring sustainable economic growth in Oslo and in developing and implementing ecological solutions.
- 10) Providing assistance in choosing an educational path and professional support by NAV (Ministry of Labor and Social Policy) employees present at the school (at least once a week).
- 11) Schools and support systems must respond to the trauma that students encounter in their daily lives.
- 12) Tailored training offers and student support with a short stay in Norway and strengthening language training for multilingual students.
- 13) Vocational education teachers should be mentors and support students in their problems.
- 14) The school provides students with access to internships and vocational training.
- 15) Language learning and preparatory courses aimed at equalizing the level of education will make young people feel safer and be more willing to participate in secondary school activities.

Sources of funding:

Upper secondary education is financed by the district authorities. To meet the needs, in 2019 the City Council changed the criteria for granting additional funds for primary schools in areas exposed to difficult living conditions (so-called allocations), so that the allocations were more accurate in relation to the needs. Moreover, the City of Oslo got involved in the matter to ensure better financing in schools where students from expatriate and lower-income families study.

5) Benefits

- 1) Increasing the chances of graduating from high school for more students.
- 2) Introducing various forms of teaching, making teaching more interesting and motivating to attend classes.

- 3) Trainings are tailored to the educational needs of students and the labor market.
- 4) The school supports the student in all his problems, both family and academic, thanks to which the student remains in the education system until he graduates.
- 5) An educated society supports the development of the state, there are fewer criminals, and expenditure on social activities of the state decreases.
- 6) Fewer students in classes, which favors integration and teachers getting to know students better.

Contact:

Max Myklagard, FURIM Institutt, Oslo, Norway.

Source:

- 1) Byrådets strategi for økt gjennomføring i videregående opplæring . Oslo kommune Byrådet Byrå. Byrådssak 217/19: https://tjenester.oslo.kommune.no/ekstern/einnsyn-fillager/filtjeneste/fil?virksomhet=976819853&filnavn=vedlegg%2F2019_08%2F1319970_1_1.pdf (accessed: 09/10/2023).



ISBN 978-83-7789-741-6