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INDICATORS FOR EVALUATING THE EFFECTIVENESS OF PUBLIC-PRIVATE PARTNERSHIP PROJECTS IN THE FIELD OF VOCATIONAL EDUCATION: EUROPEAN EXPERIENCE

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Abstract

Relevance. It is determined by the European integration trends of vocational education in Ukraine, which requires the study and implementation of the best practices of implementing public-private partnership projects in the EU; a system of indicators for assessing the effectiveness of PPP projects in the field of vocational education in Ukraine has been developed.

Aim: to identify the main indicators for assessing the impact of public-private partnerships on the quality of vocational education in the EU and to develop a system of indicators for assessing the quality of PPP projects in vocational education in Ukraine.

Methods: analysis – to determine the main indicators for assessing the effectiveness of the implementation of PPP projects in vocational education; generalization – to formulate conclusions and recommendations for improving the system of indicators for assessing the quality of PPP projects in vocational education in Ukraine.

Results: it was found that the key quality indicators of PPP projects in the vocational education system include the following ones: Relevance and Alignment with Labor Market Needs; Quality of Training Delivery; Learner Outcomes and Satisfaction; Sustainability and Scalability; Stakeholder Engagement; Regulatory Compliance and Quality Assurance; Equity and Accessibility; Innovation and Responsiveness; Impact on Economic and Social Development; Monitoring and Evaluation.

Conclusions: it is determined that public-private partnership in the vocational education system are an effective tool to overcome the key challenges faced by vocational education institutions. Thanks to the participation of the private sector, which is at the forefront of industry trends, vocational education institutions can provide students with the practical skills and knowledge necessary for a successful career. The partnership contributes to improving the quality of education by providing access to modern equipment and the experience of industry professionals, improving the social situation in the region and the development of the local community. Adopting a comprehensive set of indicators to evaluate vocational education PPP projects increases their effectiveness and relevance. These indicators not only measure educational outcomes, but also allow for a comprehensive approach to assessing the effectiveness of project implementation. By using the experience and best practices of EU members, Ukraine can create a reliable framework for evaluating PPP projects, thereby improving the quality and impact of vocational education across the country.

Keywords: *vocational education, public-private partnership (PPP), PPP quality indicators, PPP quality measures, vocational education institutions, quality monitoring.*

Introduction. The ever-evolving labor market requires a skilled workforce with industry-specific knowledge and practical skills. Vocational education plays a key role in addressing this issue by preparing young people for productive work in the production and service sectors. However, vocational (technical) education institutions (hereinafter: VET institutions) often struggle to keep up with rapid technological changes and the shifting needs of industry. This is where the significance of public-private partnerships (PPP) emerges as a powerful tool for improving vocational education and ensuring its continuous innovative development (Voronina-Pryhodii & Kravets, 2022, p. 43).

One of the main advantages of PPP in vocational education is its ability to bridge the gap between the skills required by industry and the level of professional training provided by educational institutions. The private sector, being at the forefront of industry trends, possesses invaluable insights into the specific skills necessary for success. Through partnerships, this knowledge can be directly integrated into curriculum development, ensuring that vocational education graduates acquire precisely the skills employers need (Voronina-Pryhodii, 2022, p. 51-52).

For instance, a partnership between a VET institution and a technology company can lead to the development of an educational program focused on the latest programming languages and software. This ensures that graduates possess the specific skill set necessary for effective professional activity in an ever-changing technological landscape (Bernd, 2022, p. 25-27). PPP can significantly strengthen the practical component of vocational education, as private companies provide vocational education students with access to the latest equipment, facilities, and real industry experience. This is done through internships, guest lectures from industry professionals, or the development of graduation projects that solve real-world problems faced by companies. For example, a partnership between a culinary school and a renowned restaurant chain allows vocational education students to gain valuable practical experience during internships in

restaurant kitchens, learning not only cooking techniques but also restaurant operations and customer service (Marschnig, 2022).

VET institutions often face resource shortages, limiting their ability to invest in modern equipment, facilities, and teacher training. PPP offers a way to increase funding and share resources. Private companies can contribute financially, provide equipment and materials, and share expertise, while creating opportunities for teacher professional development. This collaborative approach helps create a more sustainable and well-resourced vocational education system.

The private sector is a driver of innovation. PPP can foster a culture of innovation in vocational education, leading to the development of new, more effective teaching methods and the application of educational technologies. Furthermore, continuous dialogue between educators and industry representatives allows for quicker adaptation of curricula and educational programs to meet the evolving needs of the labor market.

For example, by partnering with a leading robotics company, a VET institution can introduce robotics training into its educational programs, preparing vocational education students for the growing demand for automation skills across various industries (Fischer, 2021).

Public-private partnerships have enormous potential to improve the vocational education system. By leveraging the expertise, resources, and innovative spirit of the private sector, PPP can bridge the skills gap, enhance practical training, and ensure that the labor market is supplied with adequately trained professionals. However, careful planning and transparent implementation are essential to ensure that these partnerships benefit all stakeholders and contribute to the creation of a reliable and adaptable vocational education system (Radkevych et al., 2023, p. 7).

To assess the effectiveness of PPP in ensuring the quality of vocational education, it is necessary to collect data on quality indicators, implement changes, and monitor outcomes. Additionally, feedback from vocational education students, teachers, employers, and other

stakeholders must be considered. Ensuring the quality of vocational education involves monitoring student success and continuously updating training programs based on the results obtained (Radkevych, 2023, p. 18-19).

In the European Union, the leaders in implementing PPP projects in the vocational education system include Germany, Austria, Switzerland, the Netherlands, Denmark, and others. It is essential to study the experience of evaluating the results of joint activities between vocational (technical) education institutions and the private sector and, based on this analysis, identify the indicators of the impact of public-private partnerships on the quality of vocational education in EU countries.

The purpose of this article is to identify the key indicators for assessing the impact of PPP on the quality of vocational education in EU countries and to provide recommendations for a system of indicators for evaluating the quality of PPP projects in Ukrainian vocational education.

Research methods: analysis – to identify the key indicators for assessing the effectiveness of PPP projects in vocational education; comparative analysis – to identify similarities and differences in the system of indicators for assessing the effectiveness of PPP projects in the EU and Ukraine; generalization – to formulate conclusions and recommendations for improving the system of quality indicators for PPP projects in Ukrainian vocational education.

Sources. In the European Court of Auditors' specialized report "*Public Private Partnerships in the EU: Widespread Shortcomings and Limited Benefits*" (2018), it is noted that a PPP contract must define and discuss all aspects related to project implementation, financing, operation, and maintenance, including performance indicators and measurement systems, which are not usually part of a typical contract but take more time to justify than the subject of the contract itself (p. 23-24). This highlights how complex it is to agree on the indicators for assessing the effectiveness of PPP projects. Indicators ensure that both the public and private sectors effectively contribute to the training

of a skilled workforce. Key quality indicators for PPP projects in vocational education include: relevance and alignment with labor market needs (Masson & McBride, 2006, p. 6); quality of training delivery (Nercessian, 2017); learner outcomes and satisfaction (Glaß, 2021, p. 56-57); sustainability and scalability (Moreno, 2013, p. 82-89); stakeholder engagement (Niebel et al., 2013, p. 3-4); regulatory compliance and quality assurance (Sattlegger & Hertin, 2023, p. 23-25); equity and accessibility (Wirtschafts- und Infrastrukturbank Hessen, 2016, p. 9); innovation and responsiveness (Binder & Weinhardt, 2013, p. 46-48); impact on economic and social development (Cedefop, 2009, p. 130-132); monitoring and evaluation costs (Küpfer & Semper, 2012, p. 15).

Results and Discussion. The evaluation of a PPP project based on the indicator "Relevance and Alignment with Labor Market Needs" involves determining how well the project meets current and future labor market demands.

This requires analyzing data on employment trends, skill demands, and industry growth. It is essential to use sources such as government labor market reports, industry publications, and academic research. Consultations should be organized with industry leaders, employers, educational institutions, and workforce development agencies to understand their needs and expectations (Masson & McBride, 2006).

The key indicators for evaluating this criterion are: *skill demand alignment* – Skills and competencies that are in high demand, as well as those expected to be needed in the future, are identified. The assessment should evaluate how well the PPP project provides vocational education students with the skills and competencies that are in high demand in the labor market. It is advisable to use the *Skill Demand Index (SDI)*, which is calculated as the ratio of the frequency of skill mentions in job vacancies (FSMV, Frequency of Skill Mentions in Vacancies) and the skill importance weight (WI, Weight of Importance) to the total number of vacancies (TNV, Total Number of Vacancies) (Darabi et al., 2018):

$$SDI = \frac{FSMV \cdot WI}{TNV} \quad (1)$$

Skill Importance Weight – this is an assessment based on employer surveys or expert evaluations. For instance, if a skill is critically important for a specific position, its weight can be high (e.g., 0.8 or 80%).

Based on the calculated indices, it can be concluded that certain skills are in higher demand in the labor market compared to others, despite having a lower importance weight. This index helps direct efforts towards adapting educational programs to meet the actual needs of the labor market.

Quality and relevance of training – this refers to the assessment of the quality of educational programs, curricula, and certificates offered to the

project participants, as well as their marketability in the labor market.

Employment outcomes – this involves measuring the employability of the project participants after completing the training program, including employment rate, salary level, and career advancement.

The use of the "Practical Training Quality" indicator in assessing a PPP project includes consideration of various indicators of the practical training conducted, evaluating its alignment with standards and planned outcomes (Table 1): relevance, efficiency, promptness, satisfaction, and thoroughness (Nercessian, 2017).

Table 1

SYSTEM FOR ASSESSING THE QUALITY OF PRACTICAL TRAINING

Indicators	Metric	Data Collection Method	Frequency
Relevance	Alignment of the practical training content with the participants' needs and the PPP project goals	Survey	Before training
Effectiveness	Improvement of skills and competencies	Tests and assessment of practical tasks before and after training	Before and after training
Timeliness	Adherence to the time budget and training schedule	Measurement of time expenditure and deadlines for conducting practical training	During and after training
Satisfaction	Participant satisfaction	Survey	After training
Thoroughness	Long-term retention of knowledge/skills	Survey/interview	3-6 months after training

The "retention" indicator can be calculated using the Ebbinghaus method and applied to assess

how quickly knowledge fades over time (Mokin & Voitsekhovska, 2019, pp. 49-51):

$$R(t) = R_0 \cdot e^{-\lambda t} \quad (2)$$

Where: R(t) – the knowledge retention level (in %) after time t (in days), R₀ – the initial knowledge level (in %), λ – the forgetting constant (mnemonic techniques: λ≈0.01 – 0.05 per day; facts and figures: λ≈0.05 – 0.10 per day; conceptual knowledge: λ≈0.02 – 0.10 per day; language skills: λ≈0.01 – 0.03 per day).

The evaluation of the PPP project's effectiveness according to the indicator "Learning outcomes and satisfaction of vocational education

recipients" involves determining the project's impact on educational results and overall participant satisfaction (Glaß, 2021). This indicator includes three criteria:

1. Learning outcomes (analysis of academic performance, graduation rates, competency assessments, etc.).
2. Satisfaction of vocational education recipients (using focus groups, interviews, surveys, and questionnaires to assess satisfaction with the

quality of education, provided resources, and overall learning experience).

3. Engagement of education recipients (collecting data on class attendance and participation in extracurricular activities).

To ensure the long-term sustainability and identify the growth potential of a PPP project in vocational education, two important evaluation criteria can be used: sustainability and scalability (the indicator "Sustainable development and capacity building").

Sustainability, in the context of a PPP project, refers to the project's ability to maintain its

activities, deliver planned outcomes, and achieve its set goals in the long term. Key indicators to consider include financial sustainability, environmental sustainability, social sustainability, operational sustainability, etc. (Moreno, 2013).

The financial sustainability of a project can be assessed using an indicator such as the "Interest Coverage Ratio" (ICR). This indicator demonstrates the project's ability to cover its interest obligations (IE, Interest Expense) through operating profit (EBIT, Earnings Before Interest and Taxes):

$$ICR = \frac{EBIT}{IE} \quad (3)$$

If the interest coverage ratio (ICR) is ≥ 2 , it is a good indicator of financial stability, indicating that the project has sufficient profits to cover its interest expenses with a certain margin; 1.5 – 2 is an acceptable level but requires caution; $ICR < 1.5$ indicates potential financial difficulties; $ICR < 1$ is a critical level – the project does not generate enough profit to cover its interest expenses.

The assessment of a project's environmental sustainability often involves writing a document or report that describes various aspects of the project's impact on the environment. This document may include analysis and evaluation of indicators such as emissions, resource use, impact on biodiversity, and other environmental parameters.

The levels are distinguished as follows: Basic Level – the project complies with minimum legal requirements and standards related to environmental protection; Intermediate Level – the project has established environmental goals and control mechanisms to achieve them; Advanced Level – the project or product actively contributes to sustainable resource use and environmental conservation.

To assess the social sustainability of the project, it is necessary to determine the level of involvement and support from the local community – how actively local residents or organizations interact with the project, how they support it, and how willing they are to participate in its implementation.

The operational sustainability of the project is related to its ability to function effectively and achieve its goals despite potential challenges such as

technical failures, cyberattacks, natural disasters, or other unforeseen events. The key aspects of a project's operational sustainability include: infrastructure reliability; information security; recoverability; continuity of functions and services; flexibility and adaptability.

Scalability refers to the potential of the PPP project to expand or be replicated in other conditions or locations. Factors to consider include: market potential; technical capability; financial viability for expansion (revenue forecasts and capital needs); the availability of regulatory frameworks and political support for expansion; and the maturity of organizational capacity.

To define the indicators for the "Sustainable Development and Expansion Capabilities" metric, a SWOT analysis (strengths, weaknesses, opportunities, and threats) should be conducted to understand the internal and external factors affecting the sustainability and scalability of the PPP project.

Public-private partnerships are built on the interaction of public authorities, private sector partners, local communities, workers, financial institutions, regulatory bodies, non-governmental organizations, and advocacy groups.

Accordingly, the assessment of a PPP project based on the "Stakeholder Engagement" indicator involves determining how effectively communication has been established and how well stakeholder needs have been met within the project (Niegel et al., 2013).

The main indicators for assessing stakeholder engagement are: communication (frequency, transparency, and effectiveness of

communication with stakeholders); interaction (level of participation in stakeholder meetings regarding decision-making processes); feedback mechanisms (the availability and timeliness of feedback channels for stakeholders; responsiveness to stakeholder feedback); satisfaction (overall stakeholder satisfaction with the engagement process); and impact effectiveness (how stakeholder contributions have influenced project outcomes) (Amelina & Voronina, 2015, p. 131).

One of the important indicators for evaluating a PPP project is "Compliance with Regulatory Requirements and Quality Assurance," as this determines whether the project meets legal requirements and quality standards. This indicator helps ensure that the project is implemented in accordance with existing regulatory acts and maintains quality standards throughout its lifecycle (Sattlegger & Hertin, 2023).

The evaluation system for this indicator consists of two groups of metrics. The first group is compliance indicators: – legal compliance

(adherence to all applicable laws and regulations); – permits and licensing (timely acquisition of all necessary permits and licenses); – financial accountability (full financial transparency, compliance with financial regulations, including accurate reporting and auditing); – compliance with health, safety, and environmental protection standards.

The second group is quality assurance indicators: – standard compliance (adherence to industry, educational, and professional standards through the evaluation of key performance indicators in the field of vocational education); – inspections and testing (regular inspections and testing of the quality of specialist training).

For example, a comprehensive assessment of this indicator uses an evaluation sheet (Table 2) and thoroughly evaluates all aspects of regulatory compliance and quality assurance, providing a clear understanding of the PPP project's adherence to established requirements.

Table 2

COMPLIANCE AND QUALITY ASSURANCE EVALUATION MATRIX

Indicators	Weight	Score (1-10)	Comments
Compliance with legislation	20%		Full adherence to all regulations
Permits and licensing	10%		Minor delays in licensing
Financial compliance	20%		Complete financial transparency
Health and safety	15%		Compliance with safety standards
Environmental compliance	10%		Some environmental issues
Adherence to quality standards	20%		Meets most quality standards
Inspections and testing	5%		Transparency and regularity of inspections

The evaluation of a PPP project in terms of equity and accessibility involves setting clear objectives, using appropriate indicators, collecting data, and analyzing results. It is crucial to maintain transparency and engage stakeholders throughout the entire evaluation process to ensure that the project provides fair and inclusive access to its benefits for various groups involved in the educational process.

The "Equity and Accessibility" indicator of the project is assessed using the relevant metrics, specifically (Wirtschafts- und Infrastrukturbank Hessen, 2016): physical access (average distance to the nearest service point); infrastructure adaptability (accessibility of infrastructure for people with disabilities); availability of educational services

(service hours); frequency and reliability of educational services; clarity of information (availability of service information in different languages and formats); and awareness level (percentage of the population informed about available educational services).

The analysis of a PPP project using the "Innovation and Responsiveness" indicator takes into account how effectively the project incorporates new solutions and adapts to changing conditions or stakeholder needs (Binder & Weinhardt, 2013).

Innovations in PPP projects in vocational education refer to the implementation of new or improved technologies and methodologies that enhance the outcomes of professional training for

future specialists. The evaluation can be conducted using various qualitative and quantitative indicators:

- Innovation novelty (assesses the extent to which the project implements new or improved methodologies, technologies, and practices that have not been widely used before, measured as a percentage of the project's total cost).
- Innovation impact (evaluates the tangible benefits of innovative aspects in terms of productivity, efficiency, cost and time savings, or satisfaction of educational process participants).
- Flexibility in planning and execution (measures the project's ability to adapt its plan or execution in response to changes or unforeseen events – the number of plan revisions, the time required to implement changes, response time to issues, etc.).
- Risk management and mitigation (evaluates the project's ability to identify, assess, and mitigate risks throughout its lifecycle – the number and severity of identified risks, and the effectiveness of risk mitigation strategies).

The impact of a PPP project on economic growth, social justice, and the well-being of project participants is assessed using the "Impact on Economic and Social Development" indicator (Cedefop, 2009).

The economic aspect of the project is determined by the following indicators:

- Creation of a material base for organizing the training of education seekers (number of educational and job positions created during and after the project's completion).
- Income level (changes in the average income of teachers and vocational education seekers in the project's implementation area).
- Investment attraction (amount of additional private or public investments generated by the project).
- Tax revenues (increase in local or national tax revenues due to economic activity induced by the project).

The social aspect of project implementation is characterized by the following indicators:

- Quality of life (changes in living standards and quality, such as housing conditions, public safety, use of infrastructure, etc.).

- Social justice (impact on vulnerable populations, reduction of social inequality).
- Community engagement (the level of community representatives' involvement in the project and their satisfaction with the outcomes of preparing future professionals for the local labor market).

The specific features of evaluating the indicators of this dimension lie in considering the temporal characteristics of the effects of PPP project implementation in vocational education, namely:

- Direct effect (immediate changes caused by the project).
- Indirect effect (secondary impact on the local economy and community, such as increased local business activity or improved social cohesion).
- Long-term effect (sustainable benefits or drawbacks observed over a prolonged period).

As an example of evaluating financial costs in comparison to economic and social benefits, the "Cost-Benefit Analysis" approach can be used, which includes the calculation of net present value (NPV) and internal rate of return (IRR) (Cost-Benefit Analysis, 2024).

Using the "Social Return on Investment (SROI)" indicator, the social value created by the PPP project can be assessed relative to the investments made in the vocational education system. This approach translates social outcomes into monetary terms (Solopun & Ponomarova, 2019, p. 144-145).

The effectiveness of project implementation depends on monitoring features, which require additional time and financial resources. Thus, the evaluation of the PPP project includes the "Monitoring and Evaluation Costs" indicator, which characterizes the expenses associated with overseeing the project's implementation and measuring its effectiveness (Küpper & Semper, 2012). Within this indicator, two metrics are traditionally used.

First, the Monitoring and Evaluation (M&E) Cost Ratio – this ratio helps understand the proportion of resources allocated to monitoring and evaluation (Total M&E Costs) in comparison to the total project costs (Total Project Costs):

$$\text{M\&E Cost Ratio} = \frac{\text{Total M\&E Costs}}{\text{Total Project Costs}} \quad (4)$$

Secondly, the *Cost per Monitoring Activity*—this indicator provides an understanding of the efficiency of the monitoring process by taking into account the resources allocated for monitoring

and evaluation (Total M&E Costs) and the number of monitoring activities (Number of Monitoring Activities):

$$\text{Cost per Monitoring Activity} = \frac{\text{Total M\&E Costs}}{\text{Number of Monitoring Activities}} \quad (5)$$

Although there is no universal average M&E Cost Ratio, a general guideline is between 2% and 10% of the total project costs, depending on the project's complexity, industry, and specific requirements. In the education sector, it is generally recommended to allocate between 3% and 7%, depending on the project's size, complexity, and

specific demands. By allocating sufficient resources to monitoring and evaluation activities, educational projects can ensure effective implementation, accountability, and continuous improvement. Based on the analysis of quality indicators for PPP projects in the vocational education system, an evaluation sheet has been developed (Table 3).

Table 3

ASSESSMENT SHEET OF PPP PROJECT QUALITY INDICATORS IN THE VOCATIONAL EDUCATION SYSTEM

Indicator	Metric	Characteristic	Range of Values	Score
Relevance and Alignment with Labor Market Quality and relevance of training Employment outcomes	Skill demand alignment	Skill Demand Index (SDI)	0<SDI≤0.01: Very low demand – 1, 2 points; 0.01<SDI≤0.05: Low demand – 3, 4 points; 0.05<SDI≤0.1: Medium demand – 5, 6 points; 0.1<SDI≤0.2: High demand – 7, 8 points; SDI>0.2: Very high demand – 9, 10 points.	
	Expert evaluation of the liquidity of training programs in the labor market		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Percentage of individuals employed in their field		High (75%-100%) – 8, 9, 10 points; Medium (50%-75%) – 5, 6, 7 points; Low (0%-50%) – 1, 2, 3, 4 points.	
Quality of Training Delivery Effectiveness Timeliness Satisfaction Thoroughness	Relevance	Expert evaluation of practical training content alignment with participant needs and PPP project goals	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Evaluation of practical tasks improving skills and abilities		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	

	Adherence to the schedule of practical sessions	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Participant (stakeholder) satisfaction with practical training	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Long-term knowledge retention (measured using Ebbinghaus' method after 6 months)	High (80%-100%) – 9, 10 points; Medium (40%-80%) – 4, 5, 6, 7, 8 points; Low (0%-30%) – 1, 2, 3 points.	
Learner Outcomes and Satisfaction Vocational learner satisfaction Learner engagement	Learning outcomes	Academic performance (score)	High (90-100) – 9, 10 points; Medium (70-89) – 7, 8 points; Low (0-69) – 1, 2, 3, 4, 5, 6 points.
	Satisfaction with the state of vocational training		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Class attendance rate (%)		High (80%-100%) – 9, 10 points; Medium (40%-80%) – 4, 5, 6, 7, 8 points; Low (0%-30%) – 1, 2, 3 points.
Sustainability and Scalability Environmental sustainability Social sustainability Operational sustainability Scalability Regulatory framework and political support	Financial stability	Measured by the Interest Coverage Ratio (ICR)	ICR: 2-4 – 6, 7, 8, 9, 10 points; ICR: 1.5-2 – 4, 5 points; ICR<1.5 – 2, 3 points; ICR<1 – 1 point.
	Expert evaluation of the project's environmental impact		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Survey-based assessment of community engagement and support		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Expert evaluation of operational efficiency and goal achievement		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Expert evaluation of the project's potential for expansion or replication under different conditions		High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.

	Expert evaluation of the presence of regulatory frameworks and political support	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
Stakeholder Engagement Interaction Satisfaction Impact effectiveness	Communication	Assessment of the frequency, transparency, and effectiveness of stakeholder communication	High (regular and ad-hoc) – 8, 9, 10 points; Medium (scheduled) – 4, 5, 6, 7, 8 points; Low (episodic) – 1, 2, 3 points.
	Level of participation in stakeholder meetings for decision-making processes	High (representative) – 8, 9, 10 points; Medium (observers, advisors) – 4, 5, 6, 7, 8 points; Low (episodic) – 1, 2, 3 points.	
	Overall stakeholder satisfaction with the engagement process	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Expert evaluation of stakeholder contributions to project outcomes	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
Regulatory Compliance and Quality Assurance Permits and licensing Financial responsibility Health and safety Standards compliance Inspections and exams	Legal compliance	Adherence to all applicable laws and regulations	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Timely acquisition of all necessary permits and licenses	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Expert evaluation of financial transparency, compliance with financial norms, including accurate reporting and auditing	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Compliance with health, safety, and environmental protection standards	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Adherence to industry, educational, and professional standards	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Regular inspections and quality testing of specialist training	High (scheduled) – 8, 9, 10 points; Medium (after completion of project phase) – 4, 5, 6, 7, 8 points; Low	

		(episodic) – 1, 2, 3 points.	
Equity and Accessibility Infrastructure adaptability Hours of service availability Frequency and reliability of service provision Clarity of information Awareness level	Physical access	Average distance to the nearest service point	High (up to 1 km or within 20 minutes by transport) – 8, 9, 10 points; Medium (up to 2 km or within 40 minutes by transport) – 4, 5, 6, 7, 8 points; Low (more than 3 km or over 1 hour by transport) – 1, 2, 3 points.
	Accessibility of infrastructure for people with disabilities	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Hours during which educational services and infrastructure are accessible	High (7:00-22:00) – 8, 9, 10 points; Medium (8:00-16:00) – 4, 5, 6, 7, 8 points; Low (presence of restrictions and limitations) – 1, 2, 3 points.	
	Evaluation of the regularity and availability of educational services	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Availability of service information in various languages and formats	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Percentage of the population aware of available educational services	High (80%-100%) – 9, 10 points; Medium (40%-80%) – 4, 5, 6, 7, 8 points; Low (0%-30%) – 1, 2, 3 points.	
Innovation and Responsiveness Innovation impact Flexibility in planning and execution Risk management and mitigation	Novelty of solution	Expert evaluation of the implementation of new or improved methods, technologies, and practices	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Expert evaluation of the benefits of innovative aspects in terms of productivity, efficiency, cost, and time savings	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Number of plan revisions, time required to implement changes, response time to issues	High (regular reviews) – 8, 9, 10 points; Medium (after completion of phase) – 4, 5, 6, 7, 8 points; Low	

		(to address operational issues) – 1, 2, 3 points.	
	Number and criticality of identified risks, effectiveness of risk mitigation strategies	High (anticipated and mitigated risks) – 8, 9, 10 points; Medium (prompt response to risks) – 4, 5, 6, 7, 8 points; Low (mitigating consequences of risks) – 1, 2, 3 points.	
Impact on Economic and Social Development Income level Investment attraction Tax revenues Quality of life of project participants Social justice	Creation of material base for student training	Expert evaluation of the number of educational and workplace opportunities created during and after the project	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.
	Changes in average income of teachers and vocational education students in the project area	High (increase) – 8, 9, 10 points; Medium (expected income growth) – 5, 6, 7 points; Low (no income growth or potential losses) – 1, 2, 3, 4 points.	
	Volume of additional private or public investments generated by the project	High (over 30%) – 8, 9, 10 points; Medium (10%-30%) – 5, 6, 7 points; Low (up to 10%) – 1, 2, 3, 4 points.	
	Increase in local or national tax revenues generated by the project	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Changes in living standards (housing conditions, public safety, infrastructure use, etc.)	High – 8, 9, 10 points; Medium – 5, 6, 7 points; Low – 1, 2, 3, 4 points.	
	Does the project impact vulnerable populations and reduce social inequality	High (benefits for the community) – 8, 9, 10 points; Medium (benefits for project staff) – 5, 6, 7 points; Low (benefits for project participants) – 1, 2, 3, 4 points.	
Monitoring and Evaluation Cost per monitoring event	Monitoring and evaluation cost ratio	Calculation of monitoring and evaluation cost ratio (M&E Cost Ratio)	High (over 7%) – 8, 9, 10 points; Medium (3%-7%) – 5, 6, 7 points; Low (up to 3%) – 1, 2, 3, 4 points.

	Calculation and expert evaluation of costs	High (sufficient level) – 8, 9, 10 points; Medium (in line with established norms) – 5, 6, 7 points; Low (overestimated costs) – 1, 2, 3, 4 points.
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Conclusions. Public-private partnerships in the vocational education system are an effective tool that enables the overcoming of key challenges faced by vocational education institutions. Through the involvement of the private sector, which is at the forefront of industry trends, vocational education institutions can provide students with the practical skills and knowledge necessary to build a successful career. This partnership contributes to enhancing the quality of vocational education by ensuring access to modern equipment and the expertise of industry professionals, while also improving the social

situation in the region and fostering local community development. The use of a comprehensive set of indicators for evaluating PPP projects in vocational education enhances their effectiveness and relevance. These indicators not only measure educational outcomes but also allow for a comprehensive assessment of project implementation effectiveness. By leveraging the experience and best practices of EU countries, Ukraine can establish a solid foundation for evaluating PPP projects, thereby improving the quality and impact of vocational education across the country.

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ІНДИКАТОРИ ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ ПРОЄКТУ ПУБЛІЧНО-ПРИВАТНОГО ПАРТНЕРСТВА У ГАЛУЗІ ПРОФЕСІЙНОЇ ОСВІТИ: ЄВРОПЕЙСЬКИЙ ДОСВІД

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Реферат:

Актуальність статті обумовлена євроінтеграційними трендами професійної освіти України, що потребують вивчення та імплементації кращого досвіду реалізації проєктів публічно-приватного партнерства (далі: ППП) у ЄС; розроблена система показників оцінювання ефективності реалізації проєктів ППП у галузі професійної освіти України.

Мета: виявлення основних індикаторів оцінювання впливу ППП на якість професійної освіти у країнах ЄС та обґрунтування рекомендацій щодо системи показників оцінювання якості проєктів ППП у професійній освіті України.

Методи: аналіз – для визначення основних індикаторів оцінювання ефективності реалізації проєктів ППП з професійної освіти; компаративний аналіз – для пошуку спільного і відмінного у системі показників оцінювання ефективності реалізації проєктів ППП у ЄС та в Україні; узагальнення – для формулювання висновків і рекомендацій щодо вдосконалення системи показників оцінювання якості проєктів ППП у професійній освіті України.

Результати: встановлено, що до ключових індикаторів якості проєктів ППП у системі професійної освіти можна віднести: актуальність та відповідність потребам ринку праці; якість практичної підготовки; результати навчання та задоволеність здобувачів професійної освіти; сталий розвиток та розширення можливостей; залученість зацікавлених сторін; відповідність нормативним вимогам та забезпечення якості; справедливості і доступності; інновації та оперативність реагування; вплив на економічний та соціальний розвиток; витрати на моніторинг та оцінювання.

Висновки. ППП в системі професійної освіти є ефективним інструментом, що дозволяє подолати ключові виклики, з якими стикаються заклади професійної освіти. Завдяки участі приватного сектору, що перебуває на передовій галузевих тенденцій, заклади професійної освіти можуть надавати здобувачам професійної освіти практичні навички та знання, необхідні для побудови успішної кар'єри. Партнерство сприяє підвищенню якості професійної освіти, забезпечуючи доступ до сучасного обладнання та досвіду професіоналів галузі покращуючи соціальну ситуацію в регіоні та розвиток місцевої громади. Використання комплексного набору індикаторів для оцінки проєктів ППП у професійній освіті підвищує їхню ефективність та актуальність. Ці індикатори не лише вимірюють освітні результати, але й дозволяють комплексно підійти до оцінювання ефективності реалізації проєкту. Використовуючи досвід і кращі практики країн ЄС, Україна може створити надійну основу для оцінювання проєктів ППП, тим самим підвищуючи якість і вплив професійної освіти по всій країні.

Ключові слова: професійна освіта, публічно-приватне партнерство (ППП), індикатори якості ППП, показники якості ППП, заклади професійної освіти, моніторинг якості.

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