

THE ROLE OF INDUSTRY SKILLS CENTRES IN THE DEVELOPMENT OF SECTORAL QUALIFICATIONS IN THE INTEGRATED QUALIFICATIONS REGISTER

Marcin HABERLA

Wrocław University of Economics and Business; marcin.haberla@ue.wroc.pl, ORCID: 0000-0003-0599-4182

Purpose: The main objective of the article is to identify the importance of Industry Skills Centres (ISC) in the process of shaping and developing sectoral qualifications within the Integrated Qualifications Register (IQR). The specific objectives are: (1) to analyse the mechanisms of integrating ISCs with the IQR and (2) to assess the importance of ISCs for improving the quality of vocational education and adapting competences to the needs of the labour market.

Design/methodology/approach: This article is a review paper. The analysis is based on a review of available materials and documents related to the functioning of ISCs, with particular emphasis on their place in the IQR system. Due to the innovative nature of this solution, the literature on the subject remains limited, and empirical research on the effectiveness of these centres is at an early stage.

Findings: ISCs can serve as institutional hubs that integrate vocational education with the economy by developing and validating sectoral qualifications. The effectiveness of this model depends on the quality of cooperation with industry organisations and the stability of funding.

Research limitations/implications: The available literature on the effectiveness of ISCs is limited, and empirical studies in this area are still in the early stages. This creates vast opportunities for future research projects that could provide deeper insights into the actual impact of ISCs on the development of sectoral qualifications and the IQR system.

Social implications: The conclusions may serve as a basis for designing public policies in vocational education and for improving the validation system for sectoral qualifications.

Originality/value: The article provides cognitive value by situating ISCs within the broader IQR context, thereby enabling a deeper understanding of their role in the vocational education system. The results of the analysis are important for public decision-makers, local government representatives, teaching staff, and the business community, as they highlight the potential of ISCs to integrate education with the labour market and develop modern education programs. The article may also serve as a reference point for further research on the evolution of the qualifications system and the future of vocational education in the context of economic and technological transformation.

Keywords: Industry Skills Centres, sectoral qualifications, Integrated Qualifications Register.

Category of the paper: Review paper.

1. Introduction

The modern knowledge-based economy requires systematic improvement in the quality of human capital and flexible responses from education systems to technological and structural changes. Globalization, digital transformation, and the green economy are driving growing demand for specialized professional skills.

International literature emphasizes that an effective vocational education system should be strongly linked to the needs of the economy and based on transparent mechanisms for validating learning outcomes (OECD, 2022; European Commission, 2020). Research indicates that the development of sectoral qualifications reduces the skills gap and increases the professional mobility of workers (Cedefop, 2021; Powell, Solga, 2010). In this context, Centers of Vocational Excellence (CoVEs) are considered an important tool for modernizing VET systems in Europe (Rauner, Maclean, 2008).

The ISCs are being created in response to the need to strengthen cooperation among schools, universities, lifelong learning institutions, and enterprises. Their mission is not only to organise specialised training and courses but also to introduce and develop sectoral qualifications reflected in the IQR. Thus, the ISCs perform a dual function: on the one hand, they serve as modern educational and technological hubs tailored to the needs of students, learners, and employees; on the other hand, they operate as systemic instruments reinforcing the development of sectoral qualifications and the standardisation of learning outcomes.

ISCs play a significant role in sectors that are key to economic growth, such as information technology, the automotive industry, renewable energy, or logistics—areas where the demand for specialised competencies continues to increase.

The Integrated Qualifications Register, as part of the broader policy framework for lifelong learning, plays a central role in ensuring transparency, comparability, and recognition of qualifications. The inclusion of sectoral qualifications in the register promotes not only greater professional mobility among employees but also enhances the competitiveness of enterprises by facilitating access to qualified staff. Moreover, this process supports public policies related to education, employment, and the development of an innovative economy.

This article attempts to analyse the role of ISCs in the context of developing sectoral qualifications within the IQR. Theoretical considerations are complemented by an analysis of the functions these centres perform within the vocational education system and their relationship with the labour market. The paper combines both a descriptive and an applied approach—on the one hand, it presents the assumptions and institutional framework of ISCs; on the other hand, it identifies potential directions for development and challenges associated with their implementation in practice.

The aim of this article is therefore to identify the importance of Industry Skills Centers (ISC) in the process of shaping and developing sectoral qualifications within the Integrated Qualifications Register (IQR). The specific objectives are: (1) to analyze the mechanisms of integrating ISCs with the Integrated Qualifications Register (IQR) and (2) to assess the importance of ISCs for improving the quality of vocational education and training and adapting competences to the needs of the labor market.

2. Methodology

In preparing this article, the author employed the desk research method (also known as the analysis of secondary data). Desk research is a type of study that involves collecting information and data from available secondary sources, such as publications, reports, scientific articles, statistics, databases, archival materials, and online resources, without requiring primary data collection. It is one of the fundamental research methods used in the social sciences, business studies, and related disciplines.

The article is a review based on a systematic literature review and document analysis. The research process consisted of three stages: 1) identification of scientific publications on VET, sectoral qualifications, and centers of vocational excellence; 2) analysis of legal acts (Act of August 30, 2023, amending the Act on Education Law and certain other acts) and strategic documents (KPO); 3) synthesis of conclusions in the context of the institutional functions of the ISC. The selection of literature included publications from 2008-2024, including studies by the OECD, the European Commission, Cedefop, and Polish research on vocational education. The analysis was qualitative and interpretative in nature.

3. Industry Skills Centres – definition and purpose

Industry Skills Centres are modern educational institutions established to strengthen the quality of vocational education by closely integrating it with labour market needs. Their primary objective is to provide students, trainees, and adults with advanced technological and didactic facilities—including laboratories, workshops, and simulators—that enable the acquisition of practical skills aligned with the latest industrial trends (Ministry of National Education, 2023).

ISCs serve as a bridge between education and industry, expanding access to high-quality training and apprenticeships, and enabling graduates to adapt quickly to the demands of the modern labour market.

According to the Act of August 30 2023 amending the Education Law and certain other acts: *A Industry Skills Center is an educational, training, and examination institution operating at the national level, sectorally oriented in one of the occupational fields specified in the regulations issued under Article 46c(1), integrating schools providing vocational education, continuing education institutions, vocational training centers, higher education institutions, and entities referred to in Article 3(1a) engaged in activities related to that occupational field, and conducting activities that are:*

- a) educational and training in nature,*
- b) supportive of cooperation between schools, educational institutions, and employers,*
- c) innovative and developmental, disseminating knowledge, new technologies, and supporting ecological and digital transformation,*
- d) supportive of career counseling for students and professional activation of students, doctoral candidates, and graduates— addressed in particular to students, doctoral candidates, teachers, academic teachers, and employees in the given occupational field* (Act of August 30 2023, amending the Education Law and certain other acts).

ISCs differ from traditional forms of vocational education in that they operate in close connection with national sectoral organisations, which gives them a unique character and ensures standardisation of educational programs. The governing bodies of ISCs may include local government units, natural persons, legal entities (including sectoral organisations), or relevant ministries. The establishment and operation of an ISC requires a formal agreement between the governing body and the appropriate national sectoral organisation, which further strengthens the link between education and the economy.

A key element of the ISC educational offer is an innovative form of non-school lifelong learning—sectoral vocational training—which encompasses both specialised professional skills and competencies related to digitalisation and ecological transformation (Integrated Skills Strategy 2030). The offer is available to students, university learners, industry employees, and teachers, for whom the ISCs organise dedicated professional development courses. Through these activities, the centres contribute to the development of sectoral qualifications, thereby reinforcing the logic of the Integrated Qualifications Register, which collects and systematises competencies recognised as relevant to the labour market.

The unique nature of ISCs arises from their dual structure: on the one hand, they are highly specialised in a specific occupational field; on the other, their organisational framework is closely tied to the national sectoral organisation representing that field. This integration of education and professional practice with the activities of sectoral organisations makes ISCs strategic hubs of vocational excellence, fully embedded within the national Integrated Qualifications System (IQS).

In accordance with legal provisions, the establishment and operation of both public and private ISCs is possible only after the conclusion of an agreement between the governing body and the relevant sectoral organisation representing the occupational domain. An exception applies when the governing body itself is the sectoral organisation concerned.

According to the regulations, the establishment and operation of both public and non-public ISCs is possible only after an agreement has been concluded between their governing body and an industry organisation representing the professional field in question. An exception is made in situations where the industry organisation itself, with the appropriate scope, acts as the governing body. Industry organisations, as defined by the regulations, are institutions that meet all three of the following conditions: they have nationwide coverage, they conduct statutory activities in a single professional field, and they operate based on laws governing employers' organisations, chambers of commerce, crafts, associations, or professional self-governments.

Each ISC must have a Centre Council, whose composition guarantees broad representation of stakeholders. It is composed of representatives from industry organisations relevant to the field, employers—including those from the small and medium-sized enterprise sector—representatives of local and regional government (e.g., provincial and district labour market councils), the body overseeing the institution, as well as teachers and instructors who conduct classes. This organisational model promotes the development of educational and economic partnerships, ensuring that the educational offer is better adapted to the real needs of the labour market.

ISC's educational and training offer is addressed to a broad audience. It includes vocational school students, university students, doctoral students, teachers, academic teachers, and adults who are professionally active or planning to retrain. A key element of the offer is industry-specific vocational training—a new form of extracurricular continuing education designed specifically for ISC. These training courses cover both specialist skills relevant to a specific industry and digital and green transition competencies. This provides participants with the opportunity to develop qualifications in line with the requirements of the modern economy, and the learning outcomes can be recorded in the IQR as sectoral qualifications.

ISCs also offer a wide range of courses to enhance and supplement professional qualifications, including retraining courses designed to acquire competencies that meet the current needs of a specific industry. An essential aspect of this activity is the possibility of confirming sectoral qualifications with certificates signed by an industry organisation, which strengthens their recognition and value on the labour market.

Another extremely important function of ISCs is the professional development of teaching staff. As the only institutions in the education system, they offer specialised industry training for both teachers of theoretical vocational subjects and instructors of practical vocational training. This enables the improvement of vocational education quality by continually updating teachers' knowledge and skills in line with technological advancements and market trends.

ISCs, therefore, serve not only as continuing education institutions but are also often the initiators of sectoral qualifications, integrating education with the economy and constituting an important element of the qualification system in Poland. (Ministry of National Education).

The decision to establish Industry Skills Centres was included in the National Recovery and Resilience Plan (NRP), under component A: "Resilience and competitiveness of the economy". The specific objective A3 focuses on strengthening the education and lifelong learning system so that it responds to the needs of the modern economy, supports innovation processes, technology transfer, and ecological and digital transformation. As part of the A3.1 reform, plans are in place to prepare personnel to meet the challenges of the modern economy and to increase the capacity of the education system to respond to crises.

Investment A3.1.1 supports the development of vocational training, higher education, and continuing education, with a particular emphasis on cooperation between schools, universities, employers, research and development institutions, and other economic entities. Its aim is also to promote industry-specific and vocational education. One of the key elements of this reform is the establishment of 120 Industry Skills Centres, which will serve as national centres of professional excellence.

The project operator is the Foundation for the Development of the Education System (FRSE), responsible for establishing all ISCs by the end of 2024. According to the schedule, the first 20 centres were established in 2023. The implementation of the project requires close cooperation with nationwide industry organisations, state-owned companies, and vocational school authorities.

The first agreements under the ISC project competition were signed on July 4, 2023, and the selection process is still ongoing in subsequent stages. The funding covers the construction and modernisation of infrastructure, the creation of institutional structures, the employment of specialised staff, and the preparation of training program documentation. The total amount allocated for the implementation of the investment is PLN 1.429 billion, with subsidies for individual centres ranging from PLN 9 million to PLN 16 million for each of the 120 fields (Foundation for the Development of the Education System).

Ultimately, a network of 120 Industry Skills Centres will be distributed throughout the country, and their locations, assigned to individual provinces, are presented on an official map provided by the FRSE and the Ministry of National Education.



Figure 1. Industry skill centers as of October 2, 2025.

Źródło: <https://www.frse.org.pl/kpo-ISC-mapa>, 2.10.2025.

The role of ISCs in the development of sectoral qualifications is also reflected in the international perspective. The concept of centres of vocational excellence aligns with the recommendations of the European Commission, which has been promoting the CoVE model since 2020 as a tool for integrating the education system with innovative economy, green, and digital transformation policies (European Commission, 2020).

In summary, Industry Skills Centres are gradually assuming a multifaceted role in the Polish vocational education system. They are modern institutions that combine educational, research, and development, as well as advisory functions, supporting both pupils and students, as well as teachers and entrepreneurs. Thanks to their strong links with the Integrated Qualifications Register, they are becoming an essential mechanism for improving qualifications in Poland and are integral to the Lifelong Learning (LLL) policy, which responds to the needs of the modern labour market and the challenges of the global economy.

4. What are IQS and IQR?

The Integrated Qualifications System forms the foundation of Poland's national education and labour market policy in the field of competence recognition and certification, regardless of how and where the learning took place. It was established by the Act of December 22 2015, on the Integrated Qualifications System (Journal of Laws, 2024, item 1606) as a framework that integrates qualifications awarded in formal, non-formal, and informal education settings.

The main objective of introducing the IQS was to create a transparent and coherent structure that allows individuals to have their competencies formally recognised and compared both nationally and internationally. The IQS functions as a platform that connects educational institutions, the labour market, and public administration into a unified system based on the principle of lifelong learning (LLL).

Each qualification included in the IQS is referenced to both the Polish Qualifications Framework (PQF) and the European Qualifications Framework (EQF), ensuring the international comparability and transferability of skills and learning outcomes.

The system encompasses two major categories of qualifications:

- Full qualifications, awarded within the formal education system, such as school-leaving certificates, professional diplomas, or academic degrees,
- Partial qualifications, obtained through courses, training, or other non-formal learning activities. These include sectoral and market-based (freemarket) qualifications, which may be incorporated into the system upon the request of eligible institutions, following a formal validation and quality assurance process (Educational Research Institute - National Research Institute).

A key element of the system is the Integrated Qualifications Register – a central electronic database maintained by the Educational Research Institute, a National Research Institute (IBE), which serves as a public source of information on qualifications in Poland. Pursuant to Article 22 of the Act on the Qualifications Framework System, this register collects data on all qualifications included in the system, including a description of learning outcomes, the assigned PQF level, validation requirements, information on certifying bodies, and the legal basis for the recognition of a given qualification (Act of December 22, 2015 on the Integrated Qualifications System).

The IQR, therefore, serves as an information and record-keeping tool, ensuring the transparency, comparability, and credibility of qualifications. It serves as a source of knowledge for citizens, employers, career counsellors, and training institutions, facilitating the recognition of available qualifications and their value in the labour market (Institute for Educational Research – National Research Institute).

In this context, Sector Skills Centres (ISCs) play a key role in the implementation and development of sectoral qualifications within the QSF and QRF. Working in close cooperation with industry organisations, local governments, and educational institutions, ISCs serve as training centres. Thanks to modern technological facilities and integration with the qualifications system, these centres bridge the gap between education and the economy, supporting the development of skills needed in a contemporary, innovative, and sustainable economy (Ministry of National Education; European Commission).

The Integrated Qualifications System and the Integrated Qualifications Register thus form a coherent mechanism for ensuring the quality and recognition of competences. The IQS is responsible for the legal and substantive framework, while the IRQ is the database of information on qualifications. The Industry Skills Centres are responsible for the practical implementation and development of sectoral qualifications in line with labour market requirements. The interaction of these three elements enables the effective integration of education and the economy, strengthening the lifelong learning system in Poland.

5. Sectoral and free market qualifications

The qualification system, which has been operating in Poland since the adoption of the Act on the Integrated Qualification System in 2015, is a key element of education policy and the labour market, ensuring consistency between learning outcomes and the needs of the economy.

In 2024, as a result of an amendment to the ISQ Act (Act of August 30, 2023, amending the Education Law and certain other acts), the system was expanded to include new categories of qualifications: sectoral and free market. This change was designed to enhance the system's flexibility and responsiveness to dynamic economic and technological shifts. Sectoral qualifications cover skills specific to a particular industry or professional field, whereas free market qualifications are cross-cutting and can be applied in multiple areas of the labour market.

The inclusion of sectoral qualifications in the NQF is a process closely linked to the activities of industry organisations and economic institutions with nationwide coverage. It is these entities that identify the competence needs in their sectors, develop qualification descriptions, and cooperate with ministries in the process of incorporating them into the register. As a result, sectoral qualifications enable the standardisation and professionalisation of vocational education and training, and increase the transparency of career paths within a given industry (Ministry of National Education).

Sectoral qualifications are a new category of qualifications in the National Qualifications Framework, introduced to better adapt the vocational education system to the specific nature of individual industries. As indicated by the Ministry of National Education, these qualifications respond to the needs of a specific professional field, reflecting the actual requirements of the

labour market in a particular sector (Institute for Educational Research – National Research Institute). In practice, this means that sectoral qualifications are developed and supervised in cooperation with nationwide industry organisations, such as chambers of commerce, employers' associations, professional associations, and industry self-governments.

In accordance with the Act, a sectoral qualification may be included in the Integrated Qualifications Register after positive verification by the minister responsible for the industry and after consultation with the industry organisation representing the sector. The inclusion of a qualification in the system enables its formal reference to the Polish Qualifications Framework (PQF) and, if it exists, to the Sectoral Qualifications Framework (SQF) relevant to the field.

In practice, sectoral qualifications encompass skills and competences that are not regulated by separate legal provisions but are essential for effective functioning within a specific sector of the economy, such as the automotive, energy, hotel, or IT industries. They are strongly linked to the needs of the labour market and are often developed on the initiative of industry organisations, which have the best knowledge of current trends and skills gaps.

An important aspect of the development of sectoral qualifications is their integration with the activities of Industry Skills Centres, which, from 2023, will be one of the pillars of the modern vocational education system in Poland. ISCs, working in partnership with industry organisations and local governments, act as institutions that implement and develop sectoral qualifications in practice. They provide the necessary technological resources, teaching staff, and infrastructure to deliver training and validate learning outcomes in accordance with the requirements outlined in the qualification description (Ministry of National Education).

The second category introduced in the 2024 amendment to the IQS are free market qualifications, formerly known as market qualifications. Their name was changed to emphasise the broader, more flexible nature of these qualifications and their openness to initiatives from various areas of the economy and society (Institute for Educational Research – National Research Institute).

Free market qualifications encompass knowledge, skills, and competencies that are not industry-specific but respond to the current needs of the labour market. According to the definition of the Ministry of National Education, they may relate, for example, to digital, social, managerial, or language competences, and their development and inclusion in the NQF can be initiated by any entity operating in the field of education, economy, or the labour market (Institute for Educational Research – National Research Institute).

The fundamental difference between sectoral and free market qualifications is therefore the degree to which they are linked to a specific industry. Free market qualifications are more universal and can be applied in various professional contexts, which enhances their adaptability and importance for lifelong learning and the development of cross-cutting competencies.

The same regulations govern the process of incorporating free market qualifications into the NQF as for sectoral qualifications. It includes, among other things, developing a description of the qualification, defining learning outcomes, validation methods, and assigning a level in the Polish Qualifications Framework. Certifying institutions must meet the requirements for the quality and reliability of the competence assessment process, which aligns with the principle of transparency in the qualifications system.

Table 1.

Comparison of sectoral and free market qualifications in the Integrated Qualifications System

Criterion	Sectoral Qualifications	Freemarket Qualifications
Nature of qualification	Industry-specific; linked to a particular occupational field or economic sector.	Universal; responsive to the general labour market and educational needs.
Purpose of inclusion in IQS	Strengthening links between education and industry; standardising competencies within sectors.	Flexible response to evolving labour market needs and non-formal education trends.
Initiating body	National-level sectoral organisation (e.g., chamber of commerce, employers' association).	Any entity operating in education, training, or business (e.g., NGOs, training firms).
Inclusion process	<ul style="list-style-type: none"> • Submission of application via IQS portal. • Review by IQS stakeholders and sectoral councils. • Expert opinion and recommendation. • Review by the IQS Stakeholders Council. • Final approval by the relevant minister. 	<ul style="list-style-type: none"> • Submission via IQS portal • Environmental consultations. • Review by IQS stakeholders and sectoral councils. • Expert opinion and recommendation. • Review by the IQS Stakeholders Council. • Final ministerial approval.
Scope of application	Sector-specific vocational competencies (e.g., energy, construction, IT, tourism).	Cross-sectoral or general competencies (e.g., project management, digital literacy, interpersonal communication).
Connection with sectoral organisations	Mandatory – must be developed in partnership with a relevant sectoral organisation.	Not required – initiators act independently of industry structures.
Validation and certification	Conducted according to sectoral requirements and aligned with PQF/SQF standards.	Based on defined learning outcomes and validation methods proposed by the initiating body, linked to PQF levels.
Certifying institutions	Entities operating statutorily within a given industry or sector.	Accredited institutions meeting the requirements of the IQS Act; not tied to a specific sector.
Territorial scope	National, with potential recognition within the European Qualifications Framework (EQF).	National, with optional EQF referencing depending on qualification type.
Role in education and the labour market	Integrating education with industry; improving vocational training quality; supporting ISC development.	Promoting lifelong learning; facilitating recognition of skills acquired outside formal education.

Source: own study based on: Act of August 30, 2023, amending the Act – Education Law and certain other acts.

The inclusion of sectoral and free market qualifications in the Integrated Qualifications System is crucial for building a flexible, open, and integrated lifelong learning system. Both categories of qualifications contribute to increasing professional mobility, recognition of competencies, and transparency of educational opportunities in Poland.

Sectoral qualifications ensure that education is aligned with the industry economy, while free market qualifications enhance the system's adaptability and enable a rapid response to changes in the labour market. In this context, Industry Skills Centres act as a bridge—not only do they provide training and validation, but they also co-create qualification descriptions in consultation with industry partners.

As a result, the development of ISCs and the inclusion of sectoral and free market qualifications in the IQR represent a crucial step towards establishing a modern and integrated qualifications system in Poland, aligning with European educational policy standards and competence frameworks (European Commission, 2020).

6. Conclusions

The analysis conducted enables us to conclude that Industry Skills Centres play a growing, systemic role in shaping sectoral qualifications and strengthening the cohesion of the Integrated Qualifications System and the Integrated Qualifications Register. Firstly, ISCs are the missing link between education and the economy: their industry specialisation, embeddedness in partnerships with industry organisations, and the ISC Council translate into greater competence relevance of programs and better alignment of learning outcomes with the real needs of the labour market. Secondly, the inclusion of sectoral qualifications in the IQR – designed and implemented with the participation of ISCs – enhances transparency, comparability, and recognition of competences, which supports professional mobility and facilitates employers' ability to identify skill standards.

The integration of ISCs into the National Recovery Plan provides an investment and organisational framework for the project; however, its long-term effectiveness will depend on stable operational funding (maintenance of infrastructure and staff), resilience to demand volatility, and efficient quality mechanisms (validation and certification). Particularly promising is the positioning of ISCs as centres for validating learning outcomes—both formal and non-formal—which reinforces the idea of lifelong learning and increases access to certification for adults, including those undergoing retraining.

To fully exploit the potential of ISCs, it is necessary to deepen cooperation with enterprises (including SMEs) at the stage of designing qualifications, organising internships/traineeships and joint laboratories, and to constantly update sectoral qualification descriptions in the IQR in response to technological changes (digital and green transformation). A key factor for success is the development of teachers' and instructors' competences – ISCs should remain leading centres for staff development to keep teaching methodologies and technologies up to date.

The effectiveness of ISCs should be measured using a set of indicators, including, among others: the percentage of participants with a confirmed qualification entered in the IQR, employability and salary advancement rates of graduates, employer participation in programs, response time to emerging competency needs, and the diffusion of teaching innovations to vocational schools and universities.

In summary, Industry Skills Centers are an important element in the modernization of the vocational education system in Poland. The achievement of the article's objectives allows us to conclude that ISCs serve as institutional hubs integrating education with the economy through the development and validation of sectoral qualifications. Their role goes beyond training – it includes co-creating competence standards and professionalizing the qualification system. Practical implications: 1) the need for systematic evaluation of the effectiveness of ISCs, 2) strengthening cooperation with industry organizations, 3) ensuring stable financing mechanisms, 4) developing tools for monitoring the quality of sectoral qualification validation. From a public policy perspective, ISCs can be a tool for reducing the skills gap in strategic sectors, but their effectiveness depends on their permanent integration into the qualification system and the genuine commitment of economic partners.

References

1. Cedefop (2021). *The changing nature and role of vocational education and training in Europe*. Publications Office of the European Union.
2. European Commission (2020). *European centres of vocational excellence: An engine for vocational education and training development*. Publications Office of the European Union. <https://doi.org/10.2767/22562>, 10.09.2025.
3. Fundacja Rozwoju Systemu Edukacji. *Branżowe Centra Umiejętności – mapa*, <https://www.frse.org.pl/kpo-ISC-mapa>, 25.09.2025.
4. Fundacja Rozwoju Systemu Edukacji. *Krajowy Plan Odbudowy – Branżowe Centra Umiejętności*, <https://www.frse.org.pl/kpo-ISC>, 25.09.2025.
5. Instytut Badań Edukacyjnych (2024). *Kwalifikacje wolnorynkowe i sektorowe*. Retrieved from: <https://kwalifikacje.edu.pl/baza-wiedzy/skorzystaj-z-zintegrowanego-systemu-kwalifikacji-IQS/kwalifikacje-rynkowe>, 16.09.2025.
6. Instytut Badań Edukacyjnych (2024). *Zintegrowany Rejestr Kwalifikacji*. Retrieved from: <https://kwalifikacje.gov.pl>, 17.09.2025.
7. Instytut Badań Edukacyjnych. (2024). *Zintegrowany System Kwalifikacji*. Retrieved from: <https://kwalifikacje.gov.pl>, 05.10.2025.
8. Ministerstwo Edukacji Narodowej. *Branżowe Centra Umiejętności*, <https://www.gov.pl/web/edukacja/branzowe-centra-umiejtnosci>, 08.09.2025.

9. Ministerstwo Edukacji Narodowej (2020). *Zintegrowana Strategia Umiejętności 2030*. Warszawa.
10. OECD (2019). *Skills Strategy 2019: Skills to Shape a Better Future*. OECD Publishing.
11. OECD (2022). *Skills Outlook 2022: Learning for Life*. OECD Publishing.
12. Powell, J., Solga, H. (2010). Analyzing the nexus of higher education and vocational training in Europe. *European Journal of Education*, 45(3), 455-469.
13. Rauner, F., Maclean, R. (Eds.) (2008). *Handbook of Technical and Vocational Education and Training Research*. Springer.
14. Uniwersytet Dolnośląski DSW, Urząd Marszałkowski Województwa Dolnośląskiego (2024). *Dolnośląska Strategia Rozwoju Edukacji Zawodowej*, <https://www.dsw.edu.pl/badania-i-nauka/projekty-i-badania/dolnoslaska-strategia-rozwoju-edukacji-zawodowej>, 10.09.2024.
15. Ustawa z dnia 22 grudnia 2015 r. o Zintegrowanym Systemie Kwalifikacji.
16. Ustawa z dnia 30 sierpnia 2023 r. o zmianie ustawy - Prawo oświatowe oraz niektórych innych ustaw.