

## Models of Introduction of Dual Professional Education

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### Abstract

The dual system of vocational education is designed to balance education (in the educational institution) and training (at the enterprise level) equally in order to ensure the appropriate level of qualification, to teach and socialize the next generation. In addition to these effects (qualifications, education and socialization), the dual system enables the country to achieve economic goals (that is, economic growth) and social goals (that is increase youth employment); that is why many countries are trying to introduce elements of dual vocational education into their own national systems. The purpose of this study is to analyze the best international experience in implementing the dual vocational education system, identify strengths and weaknesses of this system and the issues that arise during the implementation of elements of the dual education system. Based on the analysis of cases from different countries, a matrix of implementation of dual education's elements in Ukraine and the world has been formed. Weaknesses of the approved Concept of training specialists in the dual form of education on the basis of the SWOT-analysis of the implementation of the dual education system have been identified and recommendations for its improvement have been formed.

**Keywords:** vocational education system, dual education system, SWOT-analysis, competences, subjects of the education system, educational institution

### 1. Introduction

The introduction of dual vocational education for the achievement of economic, social and personal goals has significant potential; however, it is still not used in many countries. An effective system of vocational education provides future generations with the competences necessary for both skilled work in the business environment and for active participation in public life and personal development. It is generally admitted that an effective organizational and didactic combination of theoretical and practical skills in vocational education is the best way to achieve these goals. The system of dual vocational education has proven itself in practice in a number of advanced countries. An important component of dual education systems is the purposeful involvement of the business sector in the educational process. Alternation of stages of material's theoretical capture on the basis of educational institution and their practical application on capacities of the enterprise is aimed at increasing the relevance, quality and attractiveness of training of such form of education (Swiss Agency for Development and Cooperation SDC, 2016). This seems especially relevant taking into consideration the crisis in the education system in the Ukrainian realities. After all, Ukraine is still on the path of transforming the education system from an administrative-command system to a market one. The consequence of the decrease of the state's influence on the education sector was revealed in the weakening of the links between the sphere of vocational education and the real needs of business, which in turn led to a decrease in the number of vocational schools. There were 1246 such institutions in 1990, and the number of graduates that year amounted to 376,7 thousand, while in 2019 there were 723 institutions, that is, 124 thousand qualified workers were trained. In addition, the quality of educational services decreased, which led to the fact that future employees, who had graduated from vocational schools, could not be realized in professional life, as evidenced by official statistics (State Employment Center, n.d.).

### *1.1 Review of Research and Publications*

The global financial crisis of 2007-2008 forced the international community to rethink the importance of vocational training as a link between education and employment. “Learning in the Workplace” (OECD, 2010), “Youth and Skills - Education Development at Work” (UNESCO, 2012) and “Extracurricular Education” (OECD, 2014) are examples of current international investigations on this issue.

The studies (OECD, 2010) have revealed that youth unemployment in countries with a dual vocational education system is much lower than the average indicators in EU, which amount 20% (for instance, Germany: 7%); therefore, it can be concluded that dual vocational education and training in accordance with the requirements of the labor market promotes employment, especially among young people (OECD, 2010). These factors have shaped the political commitment to dual vocational education in Europe. “Memorandum of Cooperation on Vocational Education and Training in Europe” is one of the examples, which has confirmed that dual vocational education should become the basic model of the vocational education and training system in Europe. However, along with the numerous benefits of a dual education system, there are studies on unresolved issues. For example, the report (Bundesministerium für Bildung und Forschung [BMBF], 2015) has noted that the German dual education system is characterized by a fairly high level of dependence on the business sector. In addition, Granato and Ulrich (2014) note that this system is characterized by limited access to primary vocational education and training. Elsholz (2015) draws attention to the interconnection between the professional and academic education system. Greinert and Wolf (2013) have investigated the issue of closing vocational education institutions, whereas Gessler and Howe (2015) emphasize the untimely introduction of vocational training at vocational schools. Insufficient digitalization level in professional training (Burchert, Hove & Kämäräinen, 2014) and lack of political will to implement reforms (Busemeyer, 2009) also remain relevant issues. Despite these unresolved issues, there are great hopes in the world for the effectiveness of the implementation of a dual vocational education system in different countries; however, Greinert (2013) notes that so far no country has been able to implement a successful dual education system modeled on the German system.

Synchronization of the Ukrainian economy’s development direction with the political goals of advanced economic countries is the key to progressive change. Considering that, the qualified personnel is the basic capital in any economic system, the determining factor in the economic development of the country is the quality and system of vocational education. In 2016, the process of reforming the education system was launched in Ukraine, including vocational one. A number of regulatory acts have been developed that are designed to regulate the process of reforming vocational education, including the Concept for the implementation of state policy in the field of vocational (professional-technical) education “Modern vocational (professional-technical) education” for the period to 2027 (Verkhovna Rada of Ukraine, 2019) and the Concept of training specialists by the dual form of education (Verkhovna Rada of Ukraine, 2018), which is based on the German experience. The main purpose of introducing elements of the dual professional education system in Ukraine centers around eliminating the shortcomings of traditional teaching methods taking into account the best world experience.

The education system of an individual country in its various forms has developed historically; it is closely linked to the political, social, economic and cultural systems. Therefore, the implementation of the experience of countries with intensive involvement of the business sector in the education system is a complex process; it depends on many factors. Researcher Euler (2013a, 2013b) argue that the institutional structure, culture of education and teaching methods of countries with developed dual education systems cannot be implemented in the education system of another country. Nevertheless, it is possible to take into account the basic principles of the dual education of reference countries and adapt them to the specific conditions and goals of the education system of a particular country, which needs to be reformed. Under such conditions, the experience gained in one country serves as an “example to follow” (Swiss Agency for Development and Cooperation SDC, 2016) in the implementation process of dual vocational education in other countries.

### *1.2 Purpose and Objectives of the Research*

The system of dual vocational education provides coordinated interaction of the educational and industrial spheres for training qualified personnel (Ministry of Education and Science of Ukraine, n.d.). Such systems are well developed in Austria, Germany and Switzerland. In addition to the low level of youth unemployment in countries with a well-developed system of dual vocational education, such a system also facilitates the transition from education to employment and meets the qualification requirements in the labor market.

The purpose of this study is to analyze the possibility and feasibility of implementing elements of dual vocational education in Ukraine on the basis of cases from different countries.

In order to achieve the purpose outlined it is necessary:

- to investigate the nature, features and participants of the system of dual vocational education and their role;
- to consider the best practices for the implementation of dual vocational education (cases of Germany and Austria);
- to study the features of the process of introducing elements of dual vocational education into the education system in different countries;
- to conduct SWOT analysis of the implementation of the dual vocational education system in Ukraine;
- to formulate recommendations for the introduction of dual vocational education in Ukraine.

## **2. The Research Methodology**

The following scientific methods have been used in the research process:

- the essence and best practices of implementing the dual system of vocational education have been investigated by using the method of theoretical analysis of data obtained from official reports of the studied countries and scientific literature;
- by using the method of case studies (cases of Germany and Austria), the main strengths and weaknesses of the dual education system of the studied countries have been outlined, the preconditions for the introduction of the dual education system of Ukraine, the relevance and features of borrowing the experience of Germany and Austria in the Ukrainian realities have been determined. The case study method is characterized as an explicit strategy (that is, study of an applied situation). This method has been used in our investigation in order to distinguish between the process of the emergence of the dual education system in Germany and the process of its implementation in the educational systems of different countries, including Ukraine. The assessment of the success level in the process of implementation of the German dual education system's elements have been carried out in accordance with the 11 basic elements, characterizing it.
- The method of a systematic approach has been used to generalize the basic elements and form the strengths and weaknesses of the introduction of the dual system in the studied countries and formulate recommendations for the introduction of elements of the dual education system.

## **3. Results**

### *3.1 Dual Vocational Education and its Characteristics*

Vocational education or professional-technical education is a form of education, according to which most of the educational process takes place at a vocational school. For historical reasons, vocational education was considered a supplement to basic education, however in some countries, such as France, for example, it became the most important form of vocational education (Greinert, 2005). After the Second World War, the importance of vocational education increased, especially for growing youth employment.

The system of vocational education was formed in accordance with historical and national characteristics in each country; as a result, they differ significantly from each other. However, researchers identify three common models that characterize modern national systems: the market model, where most of the training is provided by the labor market; the model of vocational education on the basis of an educational institution, or school vocational education, where most vocational education is provided at the level of schools, colleges and the dual model with a significant presence of the business environment (Greinert, 2005; Thelen, 2004). However, school and dual systems of vocational education are currently the most common models.

The new vocational education system, which currently is called the “dual education system”, was not initially perceived by trade union organizations (Thelen, 2004), because of the risk of increasing the dependence of young workers (apprentices) on their employers and foremen (masters). In the Netherlands (Westerhuis, 2007) the system of dual education was not accepted in the business environment. Despite the rejection and obstacles in the formation of vocational education, a legislative framework was formed to partially or fully restore the vocational education system. Thus, the “dual system of vocational education” emerged in the countries, where this system was regulated by law and went beyond the traditional craft sector.

The term “dual system” was first used in 1964 in a report published by the German Committee on the Education System. The term “dual system” emphasizes that it is “a system of simultaneous learning in enterprises and vocational schools” (German Committee on Education System, 1966); consequently, the success of the dual education system depends on the interaction of the responsible authorities.

Duality and cooperation between the educational institution and the production unit characterize its original concept. The word “simultaneous” should not hide the fact that the enterprise (then as today) is the dominant partner in the system. This is evident from the fact that (Gessler, 2017):

- the enterprise (not the vocational school) decides who gets the place of study and the contract for training and who does not obtain;
- students spend two-thirds of their time studying at the enterprise and only one-third of their time at the vocational school;
- training is considered successful only if the prepared final exams are organized by the departments representing the enterprise.

The concept of dual education shares responsibility, balances obligations and rights and equal partnership. This concept has been used since the 1960s till present time in order to characterize the dual system of education by combining theoretical and practical training and the distribution of practical skills at the enterprise level and theory at the educational institution’s level.

In addition, the concept takes into account that:

- training often takes place in three or more training places (for example, internal business educational institutions and training at another enterprise in the context of training alliances’ network or training networks);
- the distinction between theory and practice was canceled with the introduction of “educational areas” at vocational schools in 1996;
- the interconnection between the enterprise and the educational institution is asymmetric and unequal (Gessler, 2017).

Today’s concept of a dual system is more complex and, depending on the conceptualization, includes five or six “basic principles” (Dehnbostel, & Lindemann, 2016), six “criteria” (Gonon, 2014) and even 11 basic elements of dual education implementation (Euler, 2013a).

### *3.2 Features of the Introduction of the Dual Education System’s Elements in European Countries*

The basic elements of the dual education system of Germany are covered (Eichhorst, Rodríguez-Planas, Schmidl, & Zimmermann, 2012) and regulated by the Regulations on Vocational Training, which determine the duration, content and curriculum. The regulations issued by the federal government currently cover 350 officially recognized professional degrees issued by employers and trade unions. According to these provisions, educational enterprises and students sign a temporary contract for the duration of their studies. Compliance with the norms and rules of work and study at educational enterprises is monitored by the Committee of the local Chamber of Crafts or Commerce; the same body conducts the final examinations required for certification. Regulatory exclusivity of the training and certification process aims to ensure transparency and transfer of acquired skills, constantly adapting training standards to changes in the labor market. The Federal Institute for Vocational Education and Training conducts ongoing research to achieve this goal, providing a platform for dialogue between the federal government, employers’ representatives and trade unions. The dual system of vocational education provides the duration of training from two to four years, during which the trainee studies at the level of the enterprise and vocational school by turn. Enterprises participate in the dual system voluntarily. Currently, about 50% of enterprises are registered as authorized to conduct training in the framework of double education, although only half of them actively provide internships places. Due to the fact that training is financed by the enterprise and is quite expensive, the formation of educational enterprises is mostly carried out on the basis of large enterprises. In addition, there is a need to constantly adapt the curriculum to economic conditions and the projected demand for competences; consequently, the number of vacancies for training depends significantly on economic change. Educational enterprises must be accredited by local chambers of commerce and bear the costs of staff’s training and education.

Teachers at the level of the educational enterprise should have significant experience in the relevant profession as a foremaster or a foreman, while teachers at the level of vocational education institutions have academic qualifications. Hoeckel and Schwartz (2010) emphasize that continuous professional development is mandatory for both types of teachers. Training at the enterprise level is paid, which is regulated by a collective agreement. Expenditures on education at vocational schools are borne by the government. The level of youth employment after training depends on the current economic situation of the country.

In the Austrian vocational education system, the government plays a major role. The success of the dual education system is the result of the interaction of a large number of institutions and bodies at different levels. The Federal Ministry of Digital and Economic Affairs (BMDW) and the Federal Ministry of Education, Science and Research (BMBWF) exist at the federal level. The latter defines the curriculum and partially finances vocational schools.

There is the students' bureau in each region, located under Federal Economic Chamber (WKO), but subordinated to the Federal Ministry of Digital and Economic Affairs (BMDW). Local authorities provide funding for the construction and maintenance of vocational schools, the purchase of equipment, machinery and training materials and (together with the central government) co-finance the salaries of teachers. On-the-job training is conducted under the supervision of instructors. Professional-technical educational institutions provide general and theoretical training, as well as some practical training. Prior to attracting students, or trainees, the enterprise must prove that it meets the legislative requirements of the relevant material and technical and staffing provision. Instructors undergo special training and pass exams in order to be able to work with trainees. Beyond the educational process at the enterprise level, students must attend a vocational-technical institution one day or one and a half days per a week, that is, 20% of the time, or continuously for 8 weeks per a year. Curricula of professional-technical educational institutions contain mainly basic and skills related knowledge to the chosen profession. Training in the dual education system of Austria ends with an exit (practical as well as theoretical) exam, which confirms that the trainee has properly acquired the necessary competences (Pintsuk-Christof & Moritsch, 2019).

The basic subjects of the dual education system include: the relevant ministries and departments of the state level, administrations and agencies at the regional level, employers' associations of various industries, representatives of trade unions and associations, educational enterprises, vocational education institutions. The interaction and responsibility of interested parties is clearly regulated. Interaction of all interested parties in the dual education system is legally enshrined at all levels (state, regional, sectoral, educational institution). This process is usually managed by the relevant ministry, and other related ministries coordinate their activities with it. Various institutions, advisory councils and representatives of employers, unions, etc. work together on parity terms. Relevant institutions at the state or regional level are responsible for vocational training at professional-technical educational institutions and cooperate with the responsible ministries on the regulation of education at the enterprise level. The representatives of various sectors of the economy play an important role at the regional level. They are responsible for advising and monitoring educational enterprises, as well as for the compliance of these enterprises and teaching staff with the requirements of the dual education system. In addition, they register training contracts and set up examination commissions for intermediate and final examinations in vocational training and further training.

Based on the participation and cooperation of interested parties at the state and local levels, employers' associations and trade unions in the dual system of vocational education develop:

- Qualification profiles / professional and technical standards.
- Exam's requirements.
- Duration and content of curricula.
- Level of qualification.
- Quality assurance criteria.

Figure 1 reflects the level of interested parties' involvement in the system of dual vocational education based on the studied experience.

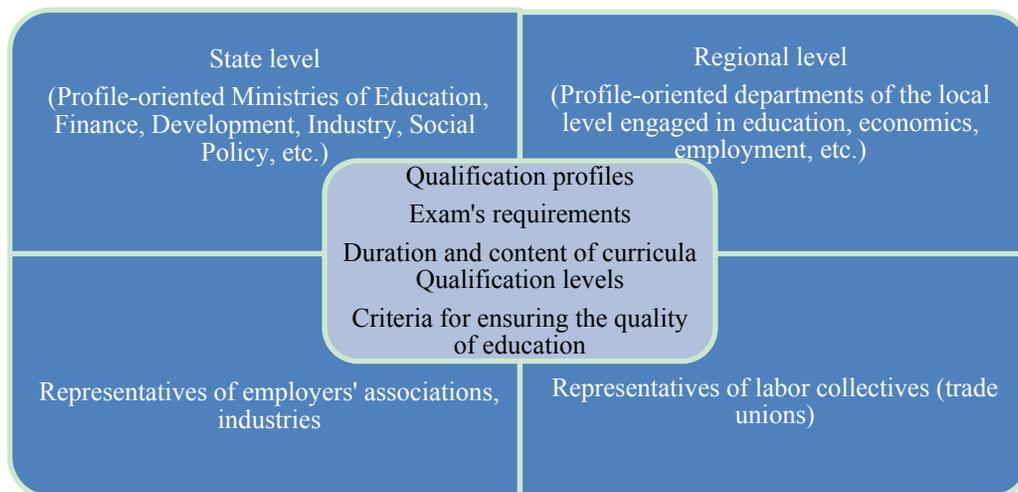


Figure 1. Model of interested parties' interaction in the system of dual vocational education

Source: it has been drawn up by the author on the basis of (Pintsuk-Christof & Moritsch, 2019)

Despite the fact that most European countries support a dual system of vocational training as part of their secondary education, each of the countries has its own features of its functioning. Moreover, the lack of comparability between systems makes it difficult to define a “successful” model. Based on the data available in the interstate reports of EU countries that have tried to implement elements of the vocational education system and on the basis of the reviewed scientific literature, the main strengths and weaknesses have been outlined that need to be considered when formulating recommendations for implementing the dual vocational education system (Carrero, 2006; Woessmann, 2008).

It should be noted that the disadvantages of the vocational education system in the studied countries of Southern Europe include the fact that vocational education here plays only a minor role and operates mostly on the basis of educational institutions, and only 4% of workers in secondary vocational education, in Spain, for example, combine the school and the workplace, which contrasts sharply with the share of 74% in Germany, where the dual education system is well developed.

The dual education system is widespread in Austria, Denmark, Germany, Switzerland and partly in the Netherlands and France. As a rule, in German-speaking countries (Austria, Germany, Switzerland), dual education is considered an archetype of the dual approach and accounts from 40% (Austria) to 80% (Switzerland) of all school leavers. The studied countries share some common and distinctive features in the system of dual vocational education, which have been outlined in the Table 1.

Table 1. Comparative characteristics of the features of the introduction of dual vocational education systems' elements

	<b>School vocational education</b>	<b>Dual professional education</b>				
	educational services are provided at secondary education institutions of different levels with the use of official curricula that shape the development of general and professional competences (schools, colleges, educational centers)	educational services are provided on the basis of a combination of general theoretical knowledge acquired in an educational institution with professional knowledge acquired in practice				
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Consolidated curriculum's development with the participation of all interested parties, taking into account a clear division of responsibilities.</li> <li>• Labor market feedback system.</li> <li>• Adequate funding to maintain a high level of material support and qualified teaching staff.</li> <li>• Independence in decision-making and public-private funding to ensure competition between educational institutions.</li> <li>• Matching qualifications and competences acquired at the level of school vocational education with academic education.</li> </ul>	<ul style="list-style-type: none"> <li>• High level of formalization, which provides education only in a centralized accredited professional qualification in accordance with market conditions.</li> <li>• Involvement of social partners in the development and support of curricula.</li> <li>• The theoretical part of the educational process is provided by vocational colleges with the financial support of governments.</li> <li>• Enterprises providing educational services must be accredited as an educational enterprise. Financing at the expense of the enterprise.</li> </ul>				
<b>Weaknesses</b>	<table border="0"> <tr> <td><b>EU countries</b> (Spain, Portugal, Italy, Greece)</td> <td><b>Countries with economies in transition</b> (Ukraine, the Czech Republic, Romania, Serbia)</td> </tr> </table>	<b>EU countries</b> (Spain, Portugal, Italy, Greece)	<b>Countries with economies in transition</b> (Ukraine, the Czech Republic, Romania, Serbia)	<table border="0"> <tr> <td><b>EU countries</b> (Austria, Germany, Switzerland, Denmark)</td> <td><b>Countries with economies in transition</b> (Hungary, Ukraine, Russia)</td> </tr> </table>	<b>EU countries</b> (Austria, Germany, Switzerland, Denmark)	<b>Countries with economies in transition</b> (Hungary, Ukraine, Russia)
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<b>EU countries</b> (Austria, Germany, Switzerland, Denmark)	<b>Countries with economies in transition</b> (Hungary, Ukraine, Russia)					

<ul style="list-style-type: none"> <li>• Deep segmentation of the labor market between permanent and fixed-term contracts.</li> <li>• Low wages of skilled labor.</li> <li>• Encouraging and creating benefits for the academic level of training.</li> <li>• Reduction of state incentives for hiring young workers.</li> <li>• Subsidizing contracts for temporary employment.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of the students enrolled at vocational schools.</li> <li>• Untimely introduction of specific professional subjects.</li> <li>• Narrowly oriented curriculum.</li> <li>• Excessive centralization in management.</li> <li>• Education systems are not able to respond quickly to changing needs of labor markets.</li> <li>• Lack of institutional links between schools, employers and society.</li> </ul>	<ul style="list-style-type: none"> <li>• Cyclical fluctuations in the availability of vacancies for training through voluntary participation of enterprises.</li> <li>• Inaccessibility of the dual education system for applicants from low-income or disadvantaged families.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of public financial incentives.</li> <li>• Non-compliance of acquired skills and competences with market requirements, outdated curricula.</li> <li>• Lack of opportunities for professional implementation in the labor market for graduates of vocational educational institutions.</li> <li>• Active promotion of academic education.</li> </ul>
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Source: it has been summarized by the author based on Eichhorst et al. (2012)

### 3.3 Features of the Introduction of the Dual Education System's Elements in Ukraine

European countries, such as: Spain, Greece, Portugal, Italy, Slovakia and Latvia are seeking to adapt their vocational training systems in accordance with the dual education system, following the German model. However, interest in the dual education system is spreading even beyond Europe: India, China, Russia and Vietnam have already agreed to cooperate with the German government in this direction. Ukraine is also taking the first steps towards dual education's implementation. In recent years, the country's authorities have developed a number of legal acts regulating activities in this area, namely (Ministry of Education and Science of Ukraine, n.d.):

- The Law of Ukraine "On Education" (Verkhovna Rada of Ukraine, 2017b);
- Medium-term plan of priority actions of the government for the period 2017-2020. Section III "Human Capital Development", Subsection 8: "Modernization of vocational education" (Verkhovna Rada of Ukraine, 2017a);
- Order of the Ministry of Education and Science of Ukraine as of 16.03.2015 № 298 "On the introduction of elements of the dual system of education in the training of skilled workers" (Ministry of Education and Science of Ukraine, 2015);
- Order of the Cabinet of Ministers of Ukraine as of 19.09.2018 № 660-r "On approval of the Concept of training specialists in the dual form of education" (Verkhovna Rada of Ukraine, 2018).

The concept is based on the German experience of the dual form of education, which was presented, in particular, thanks to the Representation of the Friedrich Ebert Foundation, the German-Ukrainian Agrarian Policy Dialogue, the Eastern Partnership Project "Dual Education in Dialogue" with the participation of educational institutions of different level.

The basic objectives of introducing elements of the dual form of education are as follows: to eliminate the main shortcomings of traditional forms and methods of training future skilled workers, bridging the gap between theory and practice, education and production, and improving the training quality of qualified personnel, taking into account the requirements of employers in the framework of new organizationally different forms of training (Ministry of Education and Science of Ukraine, n.d.).

Having analyzed the German model of the dual system of vocational education, which is considered as the reference one, it is advisable to identify the basic elements of this model, which are planned for implementation in Ukraine. Such an analysis can be performed in accordance with (Euler, 2013a, 2013b) the recommended 11 basic elements of the implementation of the dual education system, in accordance with the German model. The results of the study have been reflected in the Table 2.

Table 2. Comparative matrix of introduction of dual education’s elements in Ukraine and European countries

<b>Dual education’s elements</b>		<b>Switzerland, Austria</b>	<b>The Netherlands</b>	<b>Denmark, Norway</b>	<b>Luxembourg</b>	<b>England</b>	<b>Ukraine*</b>
1	General purpose: vocational training as a means to achieve economic, social and individual goals	X					
2	The basic purpose of vocational education: to produce skilled workers with flexible competences who are mobile and able to work in a particular field	X	X	X	X	X	X
3	Alternation of the educational process in accordance with the principles of the dual system of education						X
4	Vocational training is a task that should be carried out in partnership between the state and business		X			X	
5	Co-financing of vocational education			X			
6	Additional curricula that are formed on the basis of school or at the enterprise level	X	X	X			
7	Codification of educational quality standards					X	
8	High level of qualification of teachers and training staff						
9	Balance between standardization and flexibility			X	X		
10	Creating a holistic basis for the formation of the education system and decision-making						
11	Perception of vocational education by the society						

Source: it has been drawn up by the author on the basis of Euler (2013a, 2013b), Verkhovna Rada of Ukraine (2018)

Currently, the Ukrainian concept contains only 2 of the eleven elements of dual education; they are general conceptual and declarative, while more practical elements such as supporting public-private partnerships in the education system, developing additional curricula for educational enterprises or co-financing vocational education are not considered.

Recognizing a number of advantages and opportunities that the country will receive from the introduction of effective and full-fledged dual vocational education, it is necessary to keep in mind the shortcomings of this system and national problems and features of the current state of vocational education.

Table 3. SWOT-analysis of the introduction of dual vocational education in Ukraine

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• introduction of autonomy of educational institutions;</li> <li>• optimization of the number of vocational education institutions;</li> <li>• development of normative and legal bases for the introduction of the dual education system;</li> <li>• introduction of non-formal and informal education, full and partial professional qualifications;</li> <li>• popularization of the dual education system;</li> <li>• improvement of mechanisms for financing vocational training.</li> </ul>	<ul style="list-style-type: none"> <li>• unwillingness of graduates to work in the specialty, high popularity of academic education;</li> <li>• non-compliance of the acquired skills with the requirements of the labor market;</li> <li>• low quality of education;</li> <li>• inefficient use of budget funds;</li> <li>• outdated curricula.</li> </ul>

Opportunities	Threats
<ul style="list-style-type: none"> <li>• introduction of practical training of students;</li> <li>• formation of the mechanism of interaction of various systems (education and production, science and production);</li> <li>• improving the quality of professional training, taking into account the requirements of the labor market;</li> <li>• strengthening the role of the business environment and civil society in the field of education;</li> <li>• formation of an effective mechanism of public-private and social partnership;</li> <li>• introduction of a system of co-financing and joint management of educational institutions;</li> <li>• modernization of educational programs in accordance with modern requirements.</li> <li>• increase the level of competitiveness of graduates of educational institutions and promoting the increase of youth employment;</li> <li>• reduction of the period of adaptation of graduates to professional activity;</li> <li>• updating of qualification characteristics / professional standards;</li> <li>• increasing the motivation of students to learn.</li> </ul>	<ul style="list-style-type: none"> <li>• limited level of funding, lack of modern material and technical base and lack of practical skills of students and teachers;</li> <li>• lack of up-to-date information on the current state and future trends of the labor market;</li> <li>• lack of modern equipment and technologies in educational institutions necessary for specialists' training;</li> <li>• lack of specialists who have practical experience and can teach in educational institutions;</li> <li>• lack of positive experience in cooperation between the public and private sectors.</li> </ul>

Source: it has been drawn up by the author on the basis of Verkhovna Rada of Ukraine (2018, 2019).

#### 4. Discussions and Recommendations

It has been proved that the process of borrowing and attracting best practices for the implementation of a dual vocational education system will differ depending on the national characteristics of the country. The system of dual education in Ukraine is at an early stage of development, so the practical cases considered in our study are more related to the implementation of its elements and promoting the development of the system of dual vocational education. On the example of Germany and Austria, strategies for promoting the development and improvement of the dual education system, as well as the strengths and weaknesses of the implementation of the dual education system in advanced European countries in comparison with countries with economies in transition have been considered.

The study conducted in this academic paper highlights the special strengths and weaknesses of the two main types of vocational education system. Without taking into account the system of general education, it can be concluded that the dual system of vocational education seems to be more effective than vocational education on the basis of an educational institution.

On the one hand, vocational education is provided on the basis of an educational institution, which is acquired as a separate specialization during basic education. It corresponds to formal curricula, combining general competences and vocational education. However, with this form of training the applicant receives fewer benefits, because such education loses its connection with the real sector, that is, representatives of the business environment, which form the demand in the labor market. The dual system of vocational education, combining practical experience of work and training in vocational education on the basis of an educational institution, usually within a certain profession or field, enables the learner to acquire specific technical competences and skills that can be mastered only during the practical implementation of those or other tasks. The determining factor in the formation of an effective dual system of vocational education is the interaction of interested parties, that is, the formation of common standards of training

on the basis of the enterprise and their coordination with the theoretical part, taught at the level of the educational institution.

The considered data of countries' cases with elements of dual education show the importance of cooperation and exchange between political and economic subjects, as well as municipalities, educational institutions, training enterprises, enterprises' trainers (potential) listeners and parents, that is, the basic interested parties. Interaction at the political level should be used primarily for the introduction of innovations in education, as well as continuous improvement and permeability in the education system at the vertical and horizontal levels. Based on studies of the best practice (experience of Germany), recommendations for the introduction of dual education have been formed, which reflect the results of the concept of dual vocational education in Ukraine and evaluation of existing formats of dual education in the studied countries, namely:

- increasing the value and visibility of dual vocational education, as well as the professional sphere;
- encouraging students to test their skills in practice, as well as learn more about different professions, materials and tools;
- involvement of a wider range of subjects in the process of formation of the dual form of professional education;
- increase exchange, coordination and interaction between all subjects of dual vocational education and with broad business involvement;
- increase the link between higher education (that is, high school diploma, university diploma) and practical training at the enterprise level;
- expanding opportunities for adults and people with higher education certificates to complete dual education and training for professional reorientation or professional development;
- formation of a network of certified training enterprises and trainers;
- introduction of flexible financial instruments to subsidize and support businesses involved in the formation of dual vocational education in Ukraine.

Dual education models focus on "content to the practical requirements of vocational and professional working developed countries. It is no longer the inputs (useful knowledge) but rather the outputs (holistic vocational activities structured into areas of learning) that are de-fined" (Ministry of Education and Science of Ukraine, 2015). Education reform concerns the development of competencies and focuses on practical skills.

"The current environment appears to cast 'dual professionalism' as morphostasis" (Esmond & Wood, 2017). The training of qualified staff that meet the requirements of employers is provided due to the consolidation of resources of all participants in the process of implementation of dual vocational education. "The dual education system is one of the world-recognized models of training qualified staff" (Falyakhov, 2018). In fact, the dual model of higher professional education combines classical higher education with professional education or with practical professional activity in the company.

## 5. Conclusions

The system of German dual vocational education is often tried to be borrowed and implemented in different countries of the world, because the success of its application in Germany is obvious. Some scholars argue that it would promote economic growth, while others see it as a way to drastically reduce unemployment (especially among young people). Currently, most studies deflate such assumptions, as most attempts to implement the German system show little long-term effects. Taking this into consideration, the dual model of education has been introduced by only a few Central European countries. The conducted analysis has revealed that the implementation of such a system is quite a complex and long-term process, and a simple duplication of the basic elements and principles of the dual education system of Germany will not lead to the expected results. The analysis shows that importing a system or parts of it involves more than just duplication.

Special attention should be paid to the process of selection and adaptation of certain elements of dual vocational education in accordance with the goals and conditions of a particular country. In order to reform the national system of vocational education, the basic features and elements of the German education system have been studied, and a comparative analysis of the strategies of different countries for the introduction of elements of dual education has been conducted; by applying SWOT-analysis, the main prerequisites and prospects for the implementation of the dual education system in Ukraine have been identified, and the threats and shortcomings of the national concept in the process of implementation of dual education have been outlined. It has been determined that conceptually, the

proposed system is very similar to the German model, however, a number of fundamental issues remain unclear, such as: the mechanism of functioning of the state partnership in education, co-financing of dual education, effective models of business involvement in the educational process through financial mechanisms, such as subsidies, and other urgent issues that require further research.

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