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Vocational Education and Training and the Vocational Teacher Education System in Ukraine

A Path towards Economic Development and Social Cohesion

1 Introduction

The role of VET in Ukraine at the present historical stage is to foster capacity building of the national economy, social inclusion, and sustainable development of the economy, giving a professional qualification to young people in order to support their employability (ETF, 2017a, p. 1). In order to build a competitive economy in Ukraine, to create conditions for a more efficient integration into the world's economy, and to develop scientific, technological, and innovative spheres (these goals were set in the Strategy of Sustainable Development 'Ukraine 2020' (Verkhovna Rada, 2015b); Strategy of Development of Technical Regulation for the period until 2020) (Cabinet of Ministers of Ukraine, 2015), it is important to create closer links between the labour market and the sphere of vocational education and training (VET). VET is also of great importance for the development of entrepreneurship, start-ups and SMEs, which are playing an increasingly important role in economic development (ETF, 2017c, p. 1). It is expected that VET will gradually be transformed to become a driver of growth and development in Ukraine. This brings about a need for the VET system to be aligned with the strategies and plans for development of the regions and cities in the country, its major industrial and economic sectors, for it to be linked with the market and economic reality created by the possibility of increased trade with the EU through the Deep and Comprehensive Free Trade Area (ETF, 2017a, p. 1).

The current context which creates the basis for the process of modernization in VET involves the following factors: a change in Ukraine's geopolitical course towards integration into the European Union (EU); the internal political crisis in 2014–2015 with the subsequent slow recovery; Russia's annexation of Crimea in 2014 and its permanent military aggression against Ukraine; the stagnation of domestic industry (particularly metallurgy, one of the budget revenue-generating sectors of the economy); the deterioration of economic relations between domestic producers; weakening economic potential due to the destruction of the industrial, transport, and social infrastructure in the Donetsk and Luhansk regions; an ongoing reform process associated with the decentralization of power; high employer expectations at the level of qualifications and work experience of graduates of both VET schools and universities; a lack of social guarantees (proper working conditions, remuneration, housing provision) for blue-collar workers; a lack of awareness of labour market demand among VET graduates and their low level of employability; considerable spare capacity in the labour market; a lack of employability skills; a shadow economy; informal employment (ibid.). Furthermore, Ukraine's labour market faces multiple challenges such as a low level of internal labour mobility, high informal employment, and different types of skills mismatch, in particular high levels of over-qualification (ETF, 2017b, p. 12). In this context, both the general education and the VET sector are undergoing extensive changes.

The following article will provide an overview of the characteristics of the Ukrainian VET system and vocational teacher education system and of the interventions and actions that are being implemented to meet the political, economic, demographic, and social challenges.

2 The Ukrainian VET system: Structure and responsibilities

Ukraine's VET system comprises both initial vocational education and training (IVET) and continuing vocational education and training (CVET) components. As of 1 January 2018, the VET network consists of 774 institutions, both under the jurisdiction of the Ministry of Education and Sciences (MoES) and under the jurisdiction of local municipalities

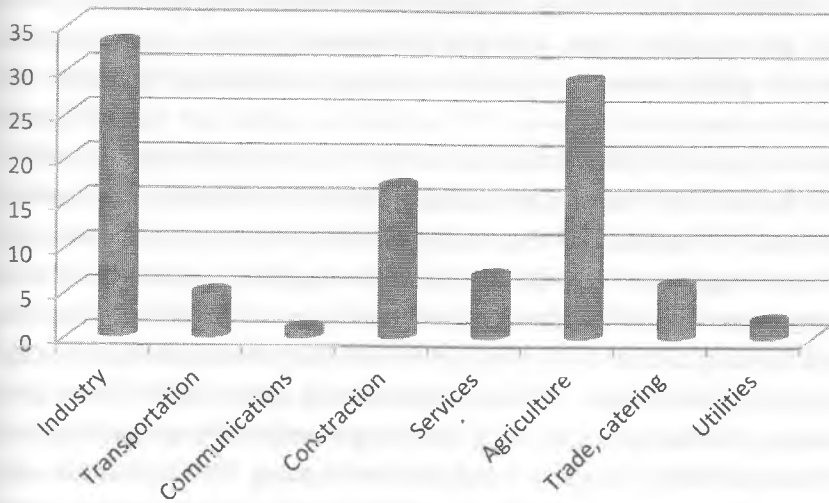


Figure 1: Sectorial Structure of VET Schools in Ukraine in 2018 (Ministry of Education and Sciences of Ukraine, 2018a, p. 6)

(Ministry of Education and Sciences of Ukraine, 2018a, p. 6). The structure of VET schools reflects the sectorial structure of the economy (see below).

Of the total number of vocational education institutions, 73 are vocational schools, 163 are higher vocational schools, 85 are vocational education centres, 338 are professional lyceums, 3 are colleges, 21 are structural subdivisions of universities, 69 are vocational schools at establishments in criminal-executive institutions, and 22 are other types of institutions. A process of reorganizing vocational education institutions in order to ensure more efficient use of funds is currently underway. Thus, during 2017 their number decreased by 32 (Ministry of Education and Sciences of Ukraine, 2018a, p. 7).

The VET system in Ukraine is structured into two levels according to the students' knowledge and skills: 'Skilled Worker' (1–3 years of training), and 'Junior Specialist' (1.5–3 years of training based on previous qualification as a 'Skilled Worker'). The 'Junior Specialist' qualification can also be granted by the higher education institution, particularly by institutions with accreditation levels I–II, that is, vocational colleges and institutes ('technikums'). In Ukraine, issues of VET at the legislative level are regulated by the Law 'On Vocational Education' (1998, amended in 2008, 2012, 2013).

According to the law, VET qualifies citizens to engage in the profession and provides them with pre-professional training, retraining, and further qualifications. Professional training or retraining of people with special educational needs in VET schools is carried out with budgetary funds. Types of VET institutions are VET schools with specific profiles, VET schools for social rehabilitation, higher VET schools, professional lyceums, professional lyceums with specific profiles, vocational and artistic schools, higher art VET schools, schools of agribusiness, higher school-agro companies, VET school-factories, centres for vocational education and training, centres for professional education, educational and production centres, centres for training and retraining of the regular labour force, training course centers, training centres, and other types of training institutions providing vocational education or training. VET institutions may provide daytime or evening classes; VET institutions carry out training, retraining, and qualification upgrades for citizens on the basis of state orders as well as agreements with enterprises, associations, institutions, organizations, and citizens. Students of state and communal VET schools who are orphans, children deprived of parental care, or children in need of special conditions of education are fully provided for by the state.

The total number of students as of 1 January 2018 was 268,298 people (6.3% of the total population in Ukraine), compared with 1,568,334 students at universities. In the case of persons graduating from institutions and obtaining a diploma as a skilled worker and a junior specialist, their number amounted to 129,439 persons in 2016, and only 111,301 persons in 2017 (due to demographic reasons and the low prestige of the VET sphere). With regard to employment, 80.8% of graduates were employed in 2016, 81.7% in 2017; 8.1% continued their studies at higher education institutions in 2016, 7.2% in 2017; 0.9% were called for military service in 2016, 0.7% in 2017 (Ministry of Education and Sciences of Ukraine, 2018a, p. 8).

In Ukraine, the executive bodies on the national level are the Ministry of Education and Science (MES), which sets priorities for VET and determines the approaches to be used; the Ministry of Social Policy, which is responsible for setting and implementing state policy on employment, labour migration, and on-the-job vocational training; the Ministry of Economic Development and Trade, which is responsible for the execution of the state order for training of qualified workers; other

ministries which govern vocational schools (particularly the Ministry of Agriculture), which are responsible for the implementation of VET state policy at the vocational schools under their jurisdiction (Verkhovna Rada, 2015a).

The executive bodies on the regional level are regional VET governing bodies (the VET departments of regional state administrations), which are responsible for implementation of state VET policy; VET institutions (responsible for organization of educational, training, financial, economic, and business activities; development of curricula and training programmes based on standard curricula; definition of the regional component of VET content; organization of on-the-job training at companies; planning of enrolment quotas with VET governing bodies, taking into account the state order, labour market needs, and input from enterprises and organizations about their needs (ibid.).

The government of Ukraine recognizes education as a fundamental right and is committed to providing every citizen access to lifelong learning opportunities and improving its quality (ETF, 2017b, p. 4). The basic principles of the legislation regulating VET in Ukraine are equal access to VET education, equal rights to vocational choice, and the provision of VET by the state, since VET responds to social and personal needs. The new legislation sets conditions for the decentralization of VET, which enables rapid managerial decision-making and allocation of funding and strengthens the role of local executive authorities and local self-government bodies in the training in accordance with regional skills needs (ETF, 2017a, p. 14).

The VET system in Ukraine has a strong social orientation and plays an important role in the protection of vulnerable population groups. The

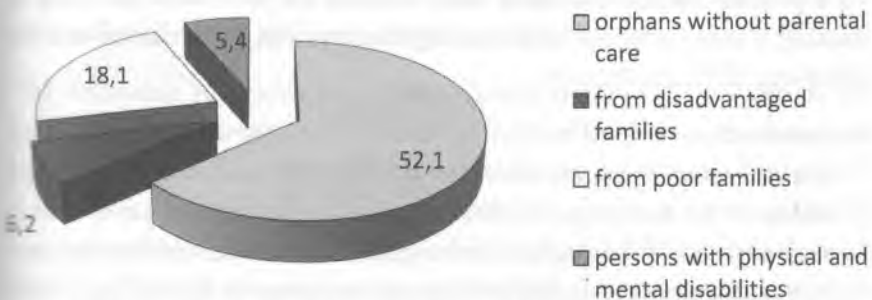


Figure 2: Categories of vulnerable groups among VET students (ETF, 2017a, p. 12)

VET system provides initial vocational education for vulnerable groups, as is shown below. The VET system also plays an important role in supporting vulnerable population groups, particularly orphans, children without parental care, and people with special needs. These groups are guaranteed preferential treatment when they enrol at VET schools. Their training and retraining is funded from the state budget. They receive funding and rehabilitation assistance during vocational training, and they are guaranteed employment after graduation.

3 Modernization of the Ukrainian VET system

3.1 Needs and defined targets and priorities

There is a strong need for modernization of the VET system in Ukraine for the purpose of assisting social cohesion and economic development, as well as changing the education and training system from a system for knowledge acquisition to a system that can equip young people with the necessary skills and competencies to help them to be more successful in life (ETF, 2017a, p. 3). In the context of European integration, the main directions for the modernization of the Ukrainian VET system are defined for the period until 2020: prestige and inclusivity of VET, quality-based initial VET, career-oriented VET, flexible training pathways and a variety of educational subsystems, compliance with European educational systems with transparent qualifications systems and support for VET students' and teachers' international mobility, high-quality information support, sustainable management and quality assurance (*ibid.*, p. 4; ETF, 2017b, p. 6).

The main targets that have been defined for VET with the aims of making it more efficient and meeting the needs of the economy are the following (ETF, 2017a, p. 9):

- introduction of a scientifically based system for forecasting labour market trends that can take into account the actual conditions and trends of the economy; creation of an efficient mechanism to ensure cooperation between central and regional authorities and social partners with respect to publicly financed investments in VET and skills development

- change of the management model based on the control of VET institutions' activities to a model based on quality assurance and management
- comprehensive funding for the VET system
- increased attractiveness and promotion of VET to enhance the prestige of blue-collar occupations and create a positive image of VET schools (using such tools as regional exhibitions of skilled-worker occupations, development of career guidance, and counselling services for children and young people)
- modernization of the network of VET schools to meet the needs of the state economy and regional labour markets, including a reorganization of the VET school network to bring it in line with the regional development plans for VET development; an increase in the average size of teaching staff at VET schools to create optimal conditions for training and quality assurance
- implementation of PPP in VET through the creation of modern educational and practical centres (EPC) for the different sectors, with investments from employers and from the state budget; the creation of at least one modernized multi-functional VET centre in every region; the strengthening of the material-technical base of VET schools, including the introduction of modern technologies; implementation of elements of the dual system in VET; training for teaching staff (internship) at educational and practical centres
- enhanced attractiveness of VET through the introduction of efficient vocational orientation programmes for young people (holding of regional, sectorial, and national competitions of professional skills among VET school students and young workers; participation in international professional competitions, in particular WorldSkills; organization of career guidance activities, etc.).

The following priorities have been identified for VET: reform of the legislative framework for VET to bring it in line with European standards by adopting the laws 'On Education' and 'On Vocational Education'; decentralization of VET governance and financing and optimization of the network of VET institutions; modernization of VET content through the development of competency-oriented educational standards based on occupational standards; development of the entire VET system com-

prising initial VET (IVET) and continuing VET (CVET) in accordance with the concept of lifelong learning; measures for enhancing the life opportunities of citizens and increasing their mobility in the labour market; implementation of public – private partnerships (PPPs); implementation of the national qualifications framework (NQF); improvement of the image of blue-collar occupations in society (ibid., p. 2).

The National Strategy for Educational Development in Ukraine for the period up to 2021, approved by the Decree of the President of Ukraine № 344/2013, dated 25 June 2013, provides the following:

- development and implementation of occupational standards for occupations and clusters of qualifications, including the update and approval of an optimized list of occupations (reducing the overall number through integration)
- update and approval of the classifier of occupations (reducing the number of occupations through integration)
- optimization of the network of VET schools of different types, vocational specialization and types of ownership, taking into account population projections, regional specificities and labour market needs, the increasing independence of schools, and the creation of industrial and training complexes
- improvement of the mechanism for state order formation to take into account the current needs of the economy and the regional labour markets as well as societal demand
- enhancing the training, retraining, and further training of VET teachers
- introduction of two-level training in vocational schools: level one, Skilled Worker, and level two, Junior Specialist (Master, Technician).

3.2 Actions and reforms

In recent years, there has been a shift from an approach based on educational content to a competency-oriented approach. National VET standards for specific occupations are now developed on the grounds of a competency-based approach, and the emphasis has been transferred from the standardization of the content of training for skilled workers to its outputs. After the National Qualification Framework (NQF)

was adopted by a resolution of the Cabinet of Ministers of Ukraine in 2011 (On Approval of the National Qualifications Framework, 2011), the process of implementing this framework in the VET system got underway. The implementation plan for National Qualifications Framework development has been developed with a view to ensuring consonance between the educational system and the labour market. Methodology for the development of competency-based state VET standards for specific occupations has been adopted. The National Classifier of Ukraine, 'Classification of Occupations', has been amended to introduce training for new universal occupations.

With a view to training a competitive workforce, progressive training and practical centres dedicated to the introduction of innovative technologies are being set up with the assistance of social partners. Within the VET system, sectorial skills councils are an instrument for allocating responsibility and fostering communication and sharing between VET institutions and the business community. As a means of improving the professional development of VET teachers, the Procedure on the Advanced Training of Pedagogical Workers in VET Institutions (Instruction of the MES, 2014) was adopted. This procedure provides mandatory advanced training for VET teachers at least once every five years at postgraduate educational institutions, universities, VET training centres, and VET schools (ETF, 2017a, p. 12).

Moreover, there has been an improvement in the internal efficiency of the VET system at both the national and the regional level as part of the decentralization. At the national level, this work has been carried out in a number of areas, including improving teacher performance; standardizing VET content; implementing innovative educational technologies and methods; and enhancing the flexibility of the VET system and individual learning pathways through the recognition of non-formal learning outcomes (*ibid.*, p. 7).

The work on VET standardization is ongoing. New national competency-based VET standards are being developed, including ones based on occupational standards elaborated by employers. In 2015, the Procedure for the Development, Approval, and Review of Occupational Standards was developed and recommended for application by the Joint Representative Body of Employers. In 2015 and 2016, 27 and 25 occupational standards, respectively, were approved under the procedure (*ibid.*, p. 9).

The ongoing process of VET decentralization is recognized as a prerequisite for adapting skills, competencies and vocational qualifications to the needs of the local economy. Decentralization is not only a simple transfer of power from the state to lower levels of governance; it is also seen as a complex redistribution of roles and responsibilities to appropriate levels of governance and involves adapting old mechanisms for rule making, decision making, and funding while creating new ones for VET policy coordination (ETF, 2017c, p. 2). However, progress on decentralization has been slow. This is mainly due to the lack of effective coordination mechanisms between state actors in building a vision for the new system, in implementing new VET policies, and in ensuring the consistency and efficiency of the decentralization process (ETF, 2017a, p. 3). Moreover, the decentralization process has faced serious challenges due to the lack of a relevant legislative and regulatory framework and a shortage of financial resources in the regions (ETF, 2017b, p. 3).

A new vision for the social role of VET in Ukraine has been created on the basis of modern concepts of accessibility and inclusiveness, providing equitable access to education, employment, and lifelong learning for all citizens, regardless of age or ability (ETF, 2017c, p. 3).

Meaningful changes have been developed within the VET network. For example, a network of so-called educational and practical centres (EPC) is being developed at vocational schools to provide training in advanced manufacturing technologies. The main functions of EPC are the introduction of modern technologies into the educational process, the professional training of unemployed people, the training of skilled workers in accordance with modern occupational standards and needs of the labour market, the conducting of vocational guidance work, and the organization of VET teacher training. In 2016–2017, 50 EPCs were created (100 million UAH were allocated from the state budget for their creation). By the end of 2020, the government plans to create an additional 125 EPCs, and expenditures from the state budget for their creation are planned to be 400 million UAH (Ministry of Education and Sciences of Ukraine, 2018a, p. 6).

The new law of Ukraine 'On Education' was adopted on 5 September 2017. It defines the purpose of VET as forming and developing a set of professional competencies which are necessary for professional activities in a particular profession in the relevant field, ensuring com-

petitiveness in the labour market, mobility, and lifelong career growth prospects. Levels of VET are the first (initial) level (a person may be qualified at the second level of the National Qualifications Framework [NQF]); the second (basic) level (a person may qualify for the third level of the NQF); the third (higher) level (a person may be qualified at the fourth level of the NQF). Professional (vocational) educational institutions have the right to carry out, according to the relevant standards, training of specialists whose competence corresponds to the fifth level of the NQF. The licencing of such educational activities and the accreditation of relevant educational programmes are carried out according to the standard procedure. VET institutions provide training, retraining, and advanced training for individuals at the expense of state and/or local budgets as well as on basis of agreements with enterprises, institutions, organizations, individuals, and/or legal entities.

In recent years, Ukraine has made further progress, notably in developing new strategic documents:

- The 10-level NQF – a significant step towards transforming the Ukrainian education and training system and moving towards a system centred on learning outcomes and responding to labour market demands (On Approval of the National Qualifications Framework, 2011). One recent achievement is the adoption of a new Action Plan for Implementing the NQF 2016–20 (adopted in December 2016). The list of professions with state significance has also been approved. The Association Agenda foresees a functioning NQF by 2020 and highlights the development of entrepreneurial human capital as a key factor in the economic and social integration of the EU and Ukraine. There is also a reference to comparability with the EQF (ETF, 2017b, p. 5).
- On Workforce Professional Development Act, which regulates issues relating to formal and non-formal vocational training provided directly by employers to employees, either at the workplace or at vocational schools, on a contractual basis.
- On Employers' Organizations, Associations, their Rights and Activities Guarantees Act, which regulates the role of employers and their organizations in the formation of the state order for skills training and the harmonization of national occupational standards. It also regulates students' remuneration during on-the-job training.

In addition, the Ministry of Education and Science of Ukraine developed a document on the conceptual foundations of the reform and the development of VET of Ukraine called 'Modern Vocational Education'. This document explains the directions of changes in the VET sphere and defines the consolidated goals, objectives, paths of development, and key components of a modern Ukrainian VET system. Among other issues, it highlights the following questions: How will decentralization of management and multi-channel financing affect the development of VET? How can personal lifelong professional development be brought into line with the needs of the economy and employers in the relevant professional qualifications? What factors will ensure the quality and attractiveness of VET? How is it possible to realize the potential of social partnerships in VET? (Ministry of Education and Sciences of Ukraine, 2018b, p. 3).

Now the draft law 'On Professional (Vocational) Education' is being prepared, which is being discussed by various authorities at various levels. The draft Law on Professional (Vocational) Education brought the NQF back onto the table. It is considered as an instrument for supporting lifelong learning and placing a stronger focus on competencies and more relevant qualifications (ETF, 2017b, p. 7). The draft Law on Vocational Education is still awaiting discussion in the Parliament.

3.3 Perspective and recommendations for future actions

Currently the VET system in Ukraine still faces several problems which have to be solved in the nearest future:

- 1) A mismatch of skills and qualifications with the needs of the economy and with the changing societal and technological environment remains an important cause of the under-utilization of the labour force and recruitment bottlenecks for Ukraine.
- 2) There is still no effective system for forecasting national and regional labour market demand in terms of skills, competencies, occupations, and qualifications.
- 3) VET is not explicitly linked to the global competitiveness of Ukrainian industry, to lifelong learning, or to entrepreneurship and innovation.

- 4) As the VET system has to maintain vulnerable VET students at public expense, there are little funds left over for the development of VET or for upgrading material and technical resources.
- 5) There has been a reduction in the VET student population owing to the demographic crisis as well as the low attractiveness of vocational education (ETF, 2017a, p. 9–12; ETF, 2017b, p. 5–9; ETF, 2017c, p. 1–7).
- 6) There has been a reduction in the teaching staff from 47,500 (as of September 2014) to 37,900 (as of September 2016), including 16,900 workshop trainers and 13 600 teachers (ETF, 2017a, p. 8).
- 7) Work-based learning is still a problematic area because of the following obstacles: a lack of motivation and financial support/tax incentives for employers implementing work-based learning practices; a lack of relevant teaching and methodological tools (in the past 10 years, only 30% of the planned textbooks have actually been published, and in the last four years, textbook publishing has been suspended entirely as a result of limited financing) (*ibid.*, p. 9).
- 8) There is no long-standing practice of involving of all stakeholders in VET policy and in strategy development and implementation. Communication between the VET system and employers in Ukraine revolves around such issues as the development of the NQF and the National Qualifications System, the elaboration of national VET standards, the recognition of non-formal learning outcomes, and work-based learning. However, employers are not yet ready for systematic financial involvement (*ibid.*, p. 10). The current legal and financial framework does not facilitate public – private partnerships, which could provide new sources of funding for the VET sector. Public – private partnerships can be practical mechanisms for sharing resources such as equipment, laboratories, and workshops as well as for developing new VET programmes, on-the-job training, internships, and regional and sectorial development (ETF, 2017c, p. 5).
- 9) VET institutions lack real independence, self-sufficiency, and responsibility in making decisions concerning the development of academic freedom, the organization of the educational process, the content of educational activity, internal governance, economic and other activities, and independent staff selection and placement (ETF, 2017a, p. 11). The autonomy of school directors is often limited by

regional staffing quotas, which determine the maximum number of staff they can employ. Employing more staff is considered a breach of budget discipline, while employing fewer staff is a tactic often used to increase staff salaries, with obvious consequences for the quality of offerings. At the same time, it is difficult to dismiss staff but equally difficult to hire owing to low salaries (ETF, 2017c, p. 4).

- 10) The role of decision-making powers at the national, regional, local, and school levels in steering VET policies is unclear. At present, the VET system is fragmented, with funding coming from regional capital city budgets as well as from regional budgets. This means that some schools are adequately funded and others chronically underfunded (ibid., p. 3).

Taking into account the above, we believe that the modernization of VET can turn the system into an important factor in the sustainable growth of the innovative potential of the national economy and society as a whole and create the prerequisites for the development of a 'knowledge-based economy' as well as for the professional development of the individual. This will require changes in the structure and content of VET. First of all, there is a need to create an effective structure for the VET system, to update VET content on the basis of occupational standards, to implement a competency-oriented educational process, and to create a modern educational environment in VET institutions.

Taking into account the sectorial specifics of the activities of VET institutions and their locations, the optimization of the VET network should proceed in accordance with the following principle: In the cities at the regional (oblast) level, lyceums have to be established along with multi-profile and single-profile professional colleges. In the cities of regional (rayon) significance, villages, only multi-profile VET schools should be established in order to ensure equal and qualitative access to vocational education.

Educational and practical centres should be established at professional colleges and lyceums to offer VET students training in modern production technologies, and the VET institutions should also include qualification centres for validating the results of training. Important structural subdivisions of VET institutions should include marketing services and professional career counselling centres. This will make it

possible to predict the future needs of the labour market in terms of qualifications and to advise young people and adults on choosing and building career strategies.

The updating of the content of vocational education involves the development of occupational and educational standards based on models of competencies as well as sectorial and regional features. In particular, professional competencies should be defined as conditions for performing certain types of work or professional activity. Accordingly, it is necessary to create general professional competency models that take into account a certain sectorial and professional orientation and key competencies for self-realization, development of the active civil position of trainees, social inclusion, and adjustment to the labour market.

The transition to an ecological, low-carbon economy is leading to the emergence of a significant number of 'green' jobs and therefore requires the development of new qualifications and educational programmes for creating additional skills geared towards the use of 'green technologies' in professional activities. Mastering such competencies enables VET students to further their personal and professional development.

Modern educational processes have to be based on the principles of increasing the share of production training and industrial practice with the aim of developing professional competencies and increasing the ability of students to perform qualified work or carry out professional activities.

The modern educational environment of VET institutions should be aimed at forming the personality of a professional – an innovator and a citizen capable of professional activity at the level of national and European standards. The social and physical environment, programmes, technologies, methods, and means of education are subject to change. ICTs will be introduced systematically in all types of activities at VET institutions as a means of encouraging inclusive vocational education. For students with special needs, more favourable conditions have to be created. Special training programmes as well as correctional and rehabilitation measures have to be developed, and appropriate psychological and pedagogical support has to be provided.

In the realization of the above tasks, an important role is assigned to teachers of VET schools, who should show a high level of readiness for innovative professional pedagogical activity, the ability to carry out

theoretical and practical training and education of future specialists, the ability to develop and select educational programmes and didactic teaching methods, and the motivation to engage in lifelong personal and professional development (Radkevych, 2017, p. 28). There have been developments to improve the system of further training for VET teachers and trainers through the drafting of relevant legislation. The MoES of Ukraine approved the Procedure for Further Training of VET Teachers and Trainers in 2014 and the Ministry of Social Policy of Ukraine introduced the regulation 'On Approving the List of VET Institutions for Internships of Workshop Trainers, Teachers of Vocational Training, and Teachers of Special Vocational Subjects' in 2016. Significant efforts for ensuring the continuing professional development of VET teachers and trainers have been made by VET training and methodology centres, which are available in every region. These centres provide course-based further training and internship services.

4 Ukrainian vocational teacher education system

Despite the 25-year-long decline of the Ukrainian VET network from 1246 to 774 (or 36%) schools, there are still problems recruiting highly qualified teaching staff. In general, the proportion of vacant staff positions at Ukrainian VET schools was 14% in 2017. Thus, the average availability of teaching staff is 86%.

4.1 Teaching staff at VET schools: categories, regulations, requirements

The main categories of teaching staff at VET schools according to Article 45 of the Law of Ukraine 'On Vocational Education' are teachers, vocational teachers, instructors, masters of industrial training, senior masters, senior masters of industrial training, instructors of in-service training, methodologists, practical psychologists, social educators, physical education leaders, principals of vocational educational, scientific-methodical, and educational institutions, their deputies, and other employees involved in the educational process.

In April 2002 the State Classificatory introduced a new occupation, 'VET teacher (according to their training profile)', which is a combination of a teacher of theoretical subjects and practical (industrial) training cycles. The tasks and responsibilities of VET teachers include providing vocational theoretical and practical training, retraining students (trainees), and ensuring the implementation of regulations on the organization of the educational process, the curriculum, and vocational training programmes. VET teachers are personally responsible for creating a safe learning environment in classrooms, laboratories, and workshops. VET teachers also provide instruction and individual counselling of students (trainees), prepare workplaces, and provide students with instruments, consumables, and supplies. In the period of apprenticeship and industrial practice, VET teachers select jobs and accompany students (trainees) to workstations according to schedules, curricula, and programmes. VET teachers select bases of apprenticeship and create draft agreements with enterprises. They also provide students (trainees) with training for their final qualification examinations and help to conduct the examinations. VET teachers monitor performance, attendance, and execution of internal regulations and behaviours. Furthermore, they manage educational activities with students (trainees). VET teachers plan and supervise training work, write reports, and support cooperation with the state employment service and employers on the issues of graduates' employment. They also ensure that students adhere to the internal regulations of the institution. VET teachers develop and improve the organization of educational work with students (trainees), implement practical recommendations for pedagogical science and innovative professional training technologies, including module training. They also monitor the educational process, questioning students (trainees) to improve methods of professional training, examine individual characteristics of students (trainees) and take them into account during the educational process, and develop their occupational and educational competencies (Ministry of Education and Sciences of Ukraine, 2013).

The VET teacher should be familiar with the fundamentals of engineering, technology, industrial production, the prospects for its development, methods of organization and forms of theoretical and practical vocational training, the use of technologies, the fundamentals of pedagogy and psychology, regulations on the organization of the educational

production process in vocational school, safety requirements, rules and norms for safe organization of work, sanitation requirements and other rules and regulations established for defined areas, and the fundamentals of legislation on the educational and production process. Thus, the occupational requirements for VET school teachers include both competencies in didactics and competencies in the production sphere which is being trained at the particular vocational school. The system of VET teacher education therefore includes both teaching and professional components (ibid.).

Qualification requirements of VET teachers (according to their categories) are (ibid.):

- *A VET teacher of the highest category should have a university degree (specialist or master's degree) and psychological-pedagogical training or a completed higher engineering pedagogical education (master, specialist); at least 2 years of professional experience in the position of a VET teacher of the 1st category.*
- *A VET teacher of the I category should have a university degree (bachelor's or master's degree) and psychological-pedagogical training or a completed or basic higher engineering pedagogical education (master, specialist, bachelor); at least 3 years of professional experience in the position of a VET teacher of the 2st category.*
- *A VET teacher of the II category should have a university degree (junior specialist, specialist, bachelor's or master's degree) and psychological-pedagogical training or a completed or basic higher engineering pedagogical education (junior specialist, specialist, bachelor's or master's degree); professional experience in the position of a VET teacher (without category) – for junior specialists at least 2 years, for masters and specialists at least 1 year.*
- *A VET teacher should have a university degree (junior specialist, specialist, bachelor's or master's degree) and psychological-pedagogical training or a completed or basic higher engineering pedagogical education (junior specialist, specialist, bachelor's or master's degree).*

4.2 VET teacher training in Ukraine

VET teacher training is regulated by the constitution of Ukraine, the national doctrine of education in Ukraine, the laws of Ukraine 'On Education', 'On Higher Education', 'On Vocational Education', and 'On science and scientific and technical activities', the concept of teacher education, the concept of vocational (professional) education, conceptual principles of teacher education and the integration of Ukraine into the European educational space, the regulation on educational qualification level, and state education standards.

The decree of the Cabinet of Ministers of Ukraine of 29 April 2015, №266 'On approving the list of disciplines and specialties for training of students in higher educational institution', approved the 015 specialty 'Professional education (with specializations)' within the field of knowledge 01 'Education'.

The law of the Ministry of Education and Science of Ukraine from 21 March 2016, № 292, approved the list of specializations of higher education in the field 015 'Professional education (with specializations)'.

Table 1: List of specializations of higher education in field 015, 'Professional education (with specializations)' (Law of Ministry of Education and Science of Ukraine from 21.03.2016, № 292)

015.01	Construction
015.02	Publishing
015.03	Mining
015.04	Woodworking
015.05	Documentation
015.06	Electronics, radio technology, and telecommunications
015.07	Electrotechnology and electromechanics
015.08	Energy
015.09	Welding
015.10	Computer technologies
015.11	Mechanical engineering
015.12	Metallurgy
015.13	Metrology, standardization, and certification
015.14	Oil and gas production

015.15	Labour safety
015.16	Service sector
015.17	The technology of the consumer goods industry
015.18	Technology of producing and recycling agricultural goods
015.19	Merchandising
015.20	Transportation
015.21	Nutrition technologies
015.22	Chemical technologies

Under current law, the training of future VET teachers is carried out at the following educational qualification levels (Verkhovna Rada, 2017b):

- Junior Specialist – corresponds to level 5 of the National Qualifications Framework (NQF), the European Qualifications Framework for Lifelong Learning (The European Qualifications Framework for Lifelong Learning – ‘EQF for LLL’), the European Qualifications Framework for Higher Education;
- Bachelor – corresponds to level 6 of the National Qualifications Framework (NQF), the European Qualifications Framework for Lifelong Learning (The European Qualifications Framework for lifelong learning – ‘EQF for LLL’), Box Qualifications of the European Higher Education Area (The Framework of Qualifications for the European Higher Education Area – ‘QF for the EHEA’);
- Master – corresponds to level 7 of the National Qualifications Framework (NQF), the European Qualifications Framework for Lifelong Learning (The European Qualifications Framework for Lifelong Learning – ‘EQF for LLL’), Box Qualifications of the European Higher Education Area (The Framework of Qualifications for the European Higher Education Area – ‘QF for the EHEA’).

According to Article 49 of the current Law of Ukraine ‘On Higher Education’, the forms of training at higher education are full-time (day, evening) and part-time (distance) (ibid.).

State standards for higher pedagogical education, including standards for VET teacher training, are currently under development. The MES recently formed a scientific advisory board and scientific-methodological commission to develop new standards for higher education on the

basis of the competency approach. The general framework of standards is defined by the Law of Ukraine 'On Higher Education' ('On Higher Education' Act, 2014). Article 10 of the law states (ibid.):

- 1) Higher education – a set of requirements for the content and outcomes of educational activities of higher education and research institutions at each level of higher education within each specialty.
- 2) Standards of higher education are developed within each specialty according to the National Qualifications Framework and are used for determining and evaluating the quality of educational content and outcomes of higher education (research institutions).
- 3) A Standard of Higher Education defines the following requirements for educational programmes:
 - i. the amount of ECTS credits that is necessary for obtaining the relevant degree of higher education;
 - ii. a list of competencies of a graduate;
 - iii. normative content of higher education training graduates, formulated in terms of learning outcomes;
 - iv. certification of candidates;
 - v. requirements for internal quality assurance;
 - vi. the requirements of occupational standards (if any).

The formation of the curriculum needs to take into account the requirements of approved standards of higher education in terms of educational qualification characteristics for the respective speciality and educational qualification level at the current time on the development list. The curriculum for a specific profession determines the list of compulsory courses (a maximum of 75 % of the total ECTS credits). The total amount of elective courses must be at least 25 % of the total ECTS credits.

Among the elective courses in the curriculum, a list of professionally oriented disciplines to select from may be established. At the same time, the regulation of the organization of the educational process determines what proportion of courses should be selected from among the courses related to a specific profession and what proportion of the courses students may select freely from.

The average amount of total training time for courses from different cycles is represented in Table 2.

Table 2: Share of courses of different cycles in the total training time (Order of the MoES of Ukraine of 09.19.2014 N^o1048 'On approval of the MES active plan for the implementation of the Law of Ukraine dated July 1, 2014 N^o1556-VII' On Higher Education)

The title of the cycle	Time share in training programme		
	Junior specialist	Bachelor	Master
Humanitarian and socioeconomic courses	20±5 %	20±5 %	10+5 %
Mathematics and natural-scientific (fundamental) courses	20±5 %	20±5 %	20+5 %
Professional (general vocational) and practical training	60±10 %	60±10 %	70+10 %
Total training time (ECTS credits)	180–240	180–240	90–120

The professional development of teachers is provided by the system of postgraduate education (SPE), covering HEIs 'University of Education Management' of NAES of Ukraine, 27 regional postgraduate educational institutions, and other relevant university departments.

The system of postgraduate education is established with forms of students' coursework with VET school teachers:

- full-time training of first cycle for newly appointed teachers
- full-time training of second and third cycle – for teachers with different work experience
- study on modular system
- part-time form of training
- individual counselling by teachers at the department and methodologists from the centre during the training course
- individual (distance) system of teacher training
- specialized courses to prepare teachers to use new training technologies.

According to Article 46 of the current Law of Ukraine 'On Vocational Education' (Verkhovna Rada, 1998, amended in 2008, 2012, 2013) the training of VET school teachers is provided at higher educational institutions and their specialized departments as well as at industrial and educational colleges and engineering-pedagogical universities.

Junior specialists and bachelors are trained at the industrial-pedagogical technical schools and colleges, particularly at Anton Makarenko Kyiv Industrial Pedagogical College, Donetsk Industrial Pedagogical College, Rubezhansky Industrial Pedagogical College, and Kharkov Industrial Pedagogical College. The basic institution for VET teacher training at the level of junior specialist is Anton Makarenko Kyiv Industrial Pedagogical College.

Training of VET teachers at higher educational institutions in Ukraine is based on:

- specialized engineering and educational institutions (Ukrainian Engineering and Pedagogical Academy in Kharkiv, Crimean Engineering and Pedagogical University)
- Polytechnic HEIs (Vinnitsa Polytechnic University)
- pedagogical HEIs (Berdyansk State Pedagogical University, Kotsiubynskyi Vinnitsa State Pedagogical University, G. Skovoroda Pereyaslav-Khmelnytsky Pedagogical University, Gnatyuk Ternopil National Pedagogical University, Tychina Uman State Pedagogical University)
- academic universities (University of Luhansk, Khmelnytsky State University, Kherson State University)
- specialized institutions (Kyiv National Economic University, Kyiv National University of Technology and Design, Poltava Agricultural University, Uman State Agrarian University).

Educational standards in this field are continuously verified by the basic engineering-pedagogical university Ukrainian Engineering and Pedagogical Academy, which is the training centre for future VET teacher training. According the decision of the International Organization for Engineering Education (IGIP) on 12 September 2000 in Paris, this university is accredited as an educational institution that conforms to the European model of training engineering teachers.

The data for the 2015–2016 state statistics on the number of students who studied in the field ‘Professional education’ (with specializations) are presented in Table 3.

Table 3: The number of students in the field 'Professional education' (with specializations) (Ministry of Education and Sciences of Ukraine, 2018a, p. 7)

Education-qualification level	Quantity of students	% of total students – future teachers
"Junior specialist"	254	4.76
"Bachelor"	98	24.44
"Master" (specialists and masters)	1558	12.71

4.3 Training of VET teachers on Economics in Ukraine

Economics teaching in the block of general subjects at VET schools includes the course 'Principles of Economics', which encompasses 35 hours (1 hour per week). Other economic subjects are offered in elective courses. Due to the limited amount of hours of economics courses, they are often taught by teachers with no relevant economics education. However, this amount of hours is clearly insufficient, because vocational students need to be prepared to conduct economic activities at businesses.

The field of study 'Professional Education. Economy' is provided in Ukrainian HEIs via a binary bachelor's programme that provides the dual qualification 'VET teacher' and 'Expert in economics' (or more specific economic specialization). Initial positions that a graduate of the bachelor's programme in this field is qualified for include teacher of training institutions at levels of accreditation I–II, curator, educator, mentor of extracurricular activities, educator at vocational school, instructor of industrial training, master of education, master of training centre, teacher-trainee, engineer mentor, leader of industrial practices, training laboratory manager, designer, economist, marketing manager on purchases, sales manager, logistic, and so on.

Despite the great need for such training, it is still extremely limited in Ukraine. In recent years it has been widely carried out in the Eastern part of Ukraine: at the University of Luhansk (licenced since 2013 in the amount of 25 full-time and 25 part-time students), Ukrainian Engineering and Pedagogical Academy in Kharkov (licenced from 2013 in the amount of 60 full-time and 80 part-time students), and other un-

versities. In Kyiv and the Kyiv region, the field 'Professional Education. Economy' is available only at the Kyiv National Economic University (licensed amount: 50 full-time students), G. Skovoroda Pereyaslav-Khmelnytsky State Pedagogical University (licensed amount 40 full-time and 25 part-time students), and Anton Makarenko Kyiv Industrial-Pedagogical College (licensed amount: 20 full-time and 20 part-time students).

4.4 Current issues and prospective of modernization of VET teacher training

Future VET teacher training in Ukraine faces the following problems: the lack of a clear description of VET teacher training, the external nature of the existing standards of VET teacher training, the lack of a holistic concept of VET teacher training in economics, including a binary concept of training that combines economic and educational specialization, the low prestige of the VET teacher profession in society.

Vocational education in Ukraine has always needed practical orientation. While studying at vocational schools, future skilled workers are supposed learn a profession and gain sufficient professional qualifications. However, the training of VET teachers still involves the use of theoretical approaches. In February and March 2017, the Institute of Vocational Education and Training of the National Academy of Educational Sciences in Ukraine conducted a survey among teaching staff of VET schools to find out the ideas of VET school teachers on practice-oriented training for future VET teachers. The survey was carried out remotely via the web service Google Forms, which allowed the institute to distribute a digital version of the questionnaire, process the results, and copy the answers for further processing in special statistical programmes, including SPSS. The questionnaire included 28 questions, combined in 6 units:

- 1) SWOT analysis of VET teacher training in HEIs
- 2) Conditions for practice-oriented training in HEIs
- 3) The current state of technology use in practice-oriented training
- 4) The pursuit of professional self-development in practice-oriented teaching
- 5) Competency of teachers in practice-oriented teaching
- 6) Social and educational characteristics of respondents.

The questionnaire was conducted anonymously to ensure more objectivity. To clarify the rules of the survey, the participants were offered a guide. The questionnaire included both open and closed questions as well as questions combining an open and closed format (in closed questions respondents were also asked to elaborate on their response if desired).

The survey involved the participation of 869 VET teachers from all regions of Ukraine. Most respondents were females (73%), which in general reflects the gender structure of the teaching staff at VET schools. In terms of education, the vast majority of respondents (82%) had higher education qualifications (specialist, master), and 64.9% had vocational education qualifications. The age structure was the following: up to 30 years – 18.2%, from 31 to 40 years – 29.5%, from 41 to 50 years – 24.1%, more than 51 years – 28.3%. Work experience was distributed as follows: up to 5 years – 21.9%, 6–10 years – 18.6%, 11–20 years – 29.6%, more than 20 years – 29.9%. The respondents worked at the following types of vocational schools: professional high schools – 43.2%, vocational schools – 20.5%, higher professional schools – 25.9%, centres of vocational education – 9.3%. The working positions of the respondents were divided as follows: 37.7% – teachers of vocational education; 39.5% – masters of industrial training; 5.3% – managerial staff (directors, deputy directors); 12.2% of the respondents (106 people) taught courses on the economic cycle.

Overall, the survey revealed imperfections in the existing system of VET teacher training at HEIs. Despite the fact that this training is characterized by breadth, a fundamental nature, scientific content, and prestige, it is too theoretical, far removed from practice, and not professionally directed; there are also outdated approaches and equipment. Suggestions for improving VET teacher training included increasing the amount of practical training, using modern practice-oriented learning technologies with ICT support, increasing cooperation with enterprises and institutions of professional education, and modernizing logistics. The respondents also referred to the importance of increasing the competency of VET teaching staff and doing more to motivate students to enter the teaching profession.

The organization of teacher training should be changed to reduce the share of traditional forms and methods of work aimed at the elaboration of theory and increase the share of practice in various ways using mod-

ern, practice-oriented teaching methods (training courses, projects, case studies, business simulations, etc.). The learning process should include a substantial amount of practical training. It is recommended to increase the amount of practical training in professional disciplines, to implement teacher training at VET schools, to initiate collaboration between universities that train VET teachers and VET schools as well as educational and production (training) centres at enterprises to provide a better organization of practices, including production, at the workplace, with the aim of equipping future teachers with the necessary skills for using practice-oriented educational technologies (quests, workshops, projects, business and educational games, etc.), ICT (specialized online courses, webinars, e-learning), creating the appropriate legal, socioeconomic, logistical, and financial conditions for practical training, and preparing methodological support for practical training by engaging practitioners to participate in the training process.

5 Conclusion

According to strategic initiatives the role of VET in Ukraine at the present historical stage is to foster capacity building of the national economy, social inclusion, and sustainable development of the economy, giving a professional qualification to young people in order to support their employability. It is being transformed to become a driver of growth and development in Ukraine to be aligned with the strategies and plans for development on national and local levels, with strong linkages with the market and economic reality. The main directions of modernization of VET are prestigious and inclusive VET, quality-based initial VET, career-oriented VET, flexible training pathways and a variety of educational subsystems, compliance with European educational systems with transparent qualifications systems and support for VET students' and teachers' international mobility, high-quality information support, sustainable management and quality assurance. In this case highly qualified and motivated VET teachers are in great demand. Future VET teacher training in Ukraine faces the following problems: the lack of a clear description of VET teacher training, the external nature of the existing standards of VET teacher training, the lack of a holistic concept of VET

teacher training in economics, including a binary concept of training that combines economic and educational specialization, the low prestige of the VET teacher profession in society. The process of modernization of VET teacher training should be in increasing the amount of practical training, using modern practice-oriented learning technologies with ICT support, increasing cooperation with enterprises and institutions of professional education, and modernizing logistics.

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