

CONSILIUM SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ

Współpraca Europejska  
Podejście Naukowe & Zastosowane Technologie

ISSN 2449-7320



EUROPEAN  
COOPERATION

Scientific Approaches and Applied Technologies

Warszawa 2020

№ 4(48) 2020

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## WSPÓŁPRACA EUROPEJSKA NR 4(48) 2020

Czasopismo jest zarejestrowane w Sądzie  
Okręgowym w Warszawie pod numerem  
19258

ISSN (PRINT) 2449-7320

## Czasopismo naukowe

## WSPÓŁPRACA EUROPEJSKA

jest umieszczone i indeksowane w  
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WSPÓŁPRACA EUROPEJSKA

Consilium Sp. z o.o.

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00-545 Warszawa, Polska

Redaktor naczelny -  
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**Publisher:**

CONSILIUIM LIMITED LIABILITY COMPANY

**EUROPEAN COOPERATION**

**Vol. 4(48) 2020**

Scientific journal is registered in District Court in Warsaw for the number 19258

ISSN (PRINT) 2449-7320

**Scientific journal**

**EUROPEAN COOPERATION**  
is included and indexed in the  
international informational and  
scientometric data bases:

- DOAJ
- Crossref
- Publons
- Central and Eastern European Online Library (CEEOL)
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## **SPIS TREŚCI**

INDICATIVE COST OF EDUCATIONAL SERVICES AS A WAY TO OPTIMIZE UKRAINIAN HIGHER EDUCATION	7
Andrii Skrypnyk, Nataliia Klymenko, Inna Kostenko (ENG)	
ECONOMIC VIOLENCE AS A TYPE OF DOMESTIC VIOLENCE: STATUTORY REGULATION AND THE FIRST EXPERIENCE OF APPLICATION OF THE CRIMINAL LEGISLATION OF UKRAINE	22
Oleksandr Bilovol (ENG)	
МОЖЛИВОСТІ ТА ПЕРЕВАГИ ВПРОВАДЖЕННЯ ВІДКРИТОГО БАНКІНГУ	35
Mariia Lutsyk (UKR)	
CURRENT TRENDS IN THE IMPLEMENTATION OF THE EUROPEAN MODEL OF ENSURING THE QUALITY OF LIVESTOCK PRODUCTS IN UKRAINE	47
Iryna Kyryliuk, Yevhenii Kyryliuk, Alina Proshchalykina, Volodymyr Hunia (ENG)	
MACRO FACTORS INFLUENCING THE FORMATION OF STANDARDIZED MANAGEMENT SYSTEMS OF AN ENTERPRISE	68
Olena Gorlova (ENG)	

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**TABLE OF CONTENTS**

INDICATIVE COST OF EDUCATIONAL SERVICES AS A WAY TO OPTIMIZE UKRAINIAN HIGHER EDUCATION	7
Andrii Skrypnyk, Nataliia Klymenko, Inna Kostenko (ENG)	
ECONOMIC VIOLENCE AS A TYPE OF DOMESTIC VIOLENCE: STATUTORY REGULATION AND THE FIRST EXPERIENCE OF APPLICATION OF THE CRIMINAL LEGISLATION OF UKRAINE	22
Oleksandr Bilovol (ENG)	
THE OPPORTUNITIES AND BENEFITS OF OPEN BANKING IMPLEMENTATION	35
Mariia Lutsyk (UKR)	
CURRENT TRENDS IN THE IMPLEMENTATION OF THE EUROPEAN MODEL OF ENSURING THE QUALITY OF LIVESTOCK PRODUCTS IN UKRAINE	47
Iryna Kyryliuk, Yevhenii Kyryliuk, Alina Proshchalykina, Volodymyr Hunia (ENG)	
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**INDICATIVE COST OF EDUCATIONAL SERVICES AS A WAY TO OPTIMIZE  
UKRAINIAN HIGHER EDUCATION**

**Abstract.** The paper considers the impact of the indicative cost of education (the minimum amount of tuition fees on the contractual basis (contract) at the expense of individuals/legal entities) in state higher education institutions on the Ukrainian market of educational services. It demonstrates that the introduction of the indicative cost of higher education by the state institutions of higher education was accessible through the application of the dumping strategy - by using the budget funds to educate fee-paying students. Under such conditions, the share of private higher education was not more than 10 percent of the total number of fee-paying students. The present paper aims to assess the impact of the introduction of the indicative cost of education on the relationship between private and public higher education, and the shift of the equilibrium cost of education. It is determined that this indicator is calculated according to a simplified algorithm individually for each state higher education institution and does not fully consider all the actual costs of the educational process. At the same time, such an implementation does not allow public institutions to use the dumping strategy and over time will change the ratio of quantitative indicators of private and public higher education in Ukraine. The sample flowchart displaying the supply and demand for the speciality "Economics" illustrates how the ratio of students studying on a contractual basis in private and state higher education institutions will change at different ratios of the indicative cost and the equilibrium cost of education in the

speciality "Economics" according to the 2019 data. It was concluded that, in general, the introduction of the indicative cost of education would subsequently lead to significant changes in the ratio of private and public higher education institutions, their student population under contract (fee-paying students) where the main factors will be the customer's fiscal capacity and the income, they provide. As a result, there will be a shift of the equilibrium point for most in-demand specialities in the direction of increasing the cost of training and reducing the volume of final contracts between the applicants and higher educational institutions.

**Keywords:** indicative cost (minimum tuition fee), educational services, educational services market, demand, supply, higher education

Formulas: 0, fig.: 5, tabl.: 2, bibl.: 35

**JEL Classification:** C01, C15, E03, E02

**Introduction.** The precedent of the transformation of Ukrainian higher education is very unique, first of all, in its duration and, second of all, in the fact that it was carried out largely by representatives of the former ideological system, unlike the countries of Eastern Europe [Halasz, 2015; Finikov, 2012; Sabloff, 1999]. This can be considered as one of the reasons for the long and incomplete stage of educational transformation in the country. As a result, outdated stereotypes continued to dominate the mind of university management for a long time, which in many cases led to a purely formal approach to European educational innovations [Finikov, 2012; Gapinski, 2010; Szelenyi, 2010, Sting, 1994].

Among the dominant trends in the transformation of higher education in Ukraine we single out deideologization in terms of partial deindustrialization of the country, the transition to mass higher education, the introduction of a multilevel higher education system, the formation of educational standards and regulations in accordance with European space and the emergence of private education. The private sector of higher education has become low compared to the public sector of development and has remained secondary both in terms of human resources (teaching) potential and attractiveness for applicants [Finikov, 2012]. According to the register of the educational activity participants as of 01.01.2020, there are 151 private institutions of higher education (hereinafter HEIs) in Ukraine, more than half of these (86) have fewer than 200 applicants, only 18 of HEIs have pool of applicants over 1000 people [Open data of the Unified State Electronic Database on Education, State Statistics Service of Ukraine, 2020]. It can be assumed that the lack of real competition from private education slowed down the processes of adaptation of the Ukrainian education to the European standards.

At present, higher education remains excessively massive. According to the results of the study in 2018, the average number of graduates with full general secondary education (hereinafter referred to as FGSE) entering higher education institutions in Ukraine is approximately 80%, while in the European Union it constitutes only 30%. Thus, the concept of higher education as a social project in Ukraine dominates the concept of quality [Kvit, 2019]. During the period of Ukraine's independence, a number of truly important institutional changes were made, including the accession to the Bologna Process in 2005, introduction of External Independent Evaluation (hereinafter ZNO) since 2007 [Finikov, 2012; Finikov & Sharov, 2014], adaptation of the



legal framework to international standards [Kvit, 2019] from 2014 until now, etc. The transition to a student-centered system of admission to higher education institutions of Ukraine became an important step in 2015 (the principle of “chance to study for every applicant”) [Kvit, 2019]. Enrollment for places under the state order for the Bachelor’s educational level (hereinafter EL) on the completion of general secondary education began to be carried out on the basis of an open ranking list for certain specialities at the state level in accordance with the number of budget places set by the Cabinet of Ministers for each speciality, for each level of higher education and admission base. The system fundamentally changed the approach to the allocation of budget places: for a large part of the HEIs it was virtually impossible to set a fixed number of applicants within certain specialities (admission option, when the number of budget places in certain HEIs was known in advance before the university admissions process), which, in its turn, eliminated corruption during the admission to the HEI; for the first time, the system admission to the HEIs took into account the country’s sectoral priorities, regional attractiveness and training conditions for rural youth, which are not always at a satisfactory level [Ministry of Education and Science of Ukraine, 2014]. The equilibrium is based on the respective coefficients, which influence the formation of the ranking point of the applicants. In addition, the system also considers the priority of the specialities defined by the applicant and the HEI, which they wish to enter. Despite the criticism of the current admission system (for example, a significant reduction in the independence of universities in matters of admission, the complexity of the application procedure), the main result – an increase in the share of residents from rural areas and small towns among students – is worth mentioning. This means that the percentage of the population with access to social elevators has increased and corresponds to the basic principles of a democratic society [World Bank, 2017; Becker, Burdelova & Yudanov, 2012; Lawrence, 2001; Stiglitz, 1997]. In this way, the existing system of income-generating activities facilitates the access to professions promising for applicants and beneficial for the economy of the country out of public funds.

However, the current state of education in Ukraine is not conducive to economic growth [Svirko & Trosteniuk 2020]. According to world statistics, calculations confirm that a high level of education should correspond to a high level of economic development (GDP per capita in US dollars). Ukraine, along with the Russian Federation and Kazakhstan, goes beyond 95% of the confidence intervals due to the level of economic development (GDP per capita is 3,000 US dollars), which in a sample of 180 countries corresponds to the educational level of 10-15% (percentage of the population with a degree), with 50-60% available in Ukraine [Skrypnyk, Klymenko & Kostenko, 2020; Skrypnyk & Oborska, 2016, Skrypnyk, 2010].

During all the years of independence, the Government of Ukraine allocated a significant share of the State budget to education and was among world leaders in terms of the amount of such expenditure [Skrypnyk & Oborska, 2015]. However, the public efficiency of the expenditure proved to be extremely low, and a large proportion of the expenditure was allocated specifically to current needs rather than to the development of this sphere. At present, with the growing financial and political decentralization of the country, the share of expenditure is shifted to local budgets, but the educational share of the burden on the state budget remains significant [Kvit, 2019]. In our view, the objective of optimizing Ukrainian higher education is to increase economic development in the

face of budgetary constraints; and this can be done by increasing the share of private education and reallocating budgets to the most efficient budget institutions.

One of such steps is the introduction of the indicative cost (minimum education cost) in state HEIs for a range of specialities, which are in great demand [Resolution of the Cabinet of Ministers of Ukraine № 191 "Some issues of introduction of indicative cost", 2020]. On the whole, the introduction of the indicative cost for the students who study under the terms of the contract in state HEIs is a positive step towards decreasing non-market advantages of state education. This innovation will significantly change the competitive relationship not only between state and private HEIs, but also significantly exacerbate them at the level of state HEIs.

It should be remembered, however, that Ukraine remains one of the most corrupt countries in Europe, which means that the absolute majority of the population exists in a perverse scale of values, that is, the main value for the majority is administrative capital, not human capital [Skrypnyk & Oborska, 2016; Skrypnyk, 2010]. Therefore, the question of the effectiveness of education and its positive impact on economic development goes far beyond the educational space.

The aim of the present paper is to study the impact of the introduction of the indicative cost of education on the ratio of private and public education institutions and on the shift of the equilibrium cost of education. Theoretical and methodological basis is a standard macroeconomic view on supply and demand, adjusted to the specificities of the higher education system of Ukraine, as well as standard methods of statistical and regression analysis.

**Literature review and the problem statement.** Humboldt University (Berlin) is the best example of transformation and integration into the European educational space. The main idea that ensured the success and speed of the transition to the modern European education system was to avoid interference in the transition process of the former university leadership, which is the complete exclusion of the continued existence of ideological and centralized education. To do this, not only the management but also more than 50% of the teaching staff were forced to be laid off from the university [Halasz, 2015; Gonca & Goksu, 2015; Wit, Hunter, Howard, & Egron-Polak, 2015; Restuccia, 2013; Szelenyi, 2010; Sabloff, 1999].

It is worth noting that the higher education systems of the European Union and the United States of America currently tend to increase the demand for higher education and, as a consequence, to narrow educational program specialization as well as to create private HEIs, which could be explained by their greater autonomy and flexibility in a competitive educational environment and by the demands of the labor market [Dźwigoł, 2018; Tilea & Vasile 2014; Chang, Huang, 2014; Mendolicchio, Paolini & Pietra, 2014; Ewert & Zilcha 2012, Gapinski, 2010, Azarnert, 2010]. The transformation of the Ukrainian higher education was carried out practically by its former leadership and this explains its current state [Finikov, 2012].

At present, there is no common stand in Ukraine on the expediency of the phenomenon of "mass education". There is a view that Ukrainian education is too mass and does not improve the quality of training [Kvit, 2019].

The low economic efficiency of the Ukrainian higher education mentioned earlier corresponds to the correlation between the level of education and the corruption of society. The level of corruption in Ukraine reaches the levels of countries where

education (percentage of citizens with higher education) does not exceed 10 per cent of the population [Skrypnyk, Klymenko & Kostenko, 2020].

Based on the motivational model of corrupt behavior in higher education, it is shown that a significant decrease in this indicator is possible if the population of the country will change their views on the effectiveness of knowledge as a source of human and not only administrative capital [Skrypnyk, Oborska, 2016; Skrypnyk, Oborska, 2015].

In the previous works of the authors [Skrypnyk & Kostenko, 2020; Skrypnyk & Oborska, 2017], by applying the methods of econometric analysis, the issue of formation of demand and supply for educational services of individual HEIs in the speciality "Economics" was considered. It turned out that in addition to the objective characteristics of the HEI (location, status, educational program specialization of HEI, number of licensed and budget places), the elitism indicator, which was set as an imaginary variable, has a significant impact on demand.

The "elitism" factor has the greatest influence, both on the supply, which was set as the cost of educational services (training) and on the demand, which was determined as the number of applications for the speciality (educational program). In addition, it has been proven that state HEIs use a dumping pricing strategy provided that the training costs of contractors are partially reimbursed through state funding. As a result of the influence of the above factors, there has been a significant discrepancy between the market of educational services and the labor market for a long time in Ukraine [Skrypnyk & Kostenko, 2020].

The response to this situation has been the introduction, since 2020, of the indicative cost of education (the minimum tuition fees for the state-owned HEIs) for individual specialities, which enjoy the greatest demand among the population [Kostenko, 2020]. At first glance, this is not a market step of state regulation, however, if we assume that all forms of ownership operating in the educational space must have equal competitive conditions and the existing ratio of private and state education - this step becomes quite clear and justified.

The aim of the present paper is to study the impact of the introduction of the indicative cost of education on the ratio of private and public education institutions and on the shift of the equilibrium cost of education. Theoretical and methodological basis is a standard macroeconomic view on supply and demand, adjusted to the specificities of the higher education system of Ukraine, as well as standard methods of statistical and regression analysis.

**Research results.** We will analyze the situation in the market for educational services, which has developed partly on the basis of the condition of the highly skilled labor market, and partly on the basis of social perceptions of the level of remuneration at individual specialities.

The proportion of various forms of ownership in the educational process can be estimated according to human potential and client base (Table 1). Firstly, it should be noted that, state HEIs demonstrate significantly higher quantitative indicators than private HEIs [Open data of the State Statistics Service of Ukraine, 2020]. Secondly, the educational space is not completely controlled by the Ministry of Education and Science of Ukraine (MES of Ukraine). There are a significant number of state-owned HEIs, which are subordinate to other ministries and departments. In these HEIs, state-commissioned

enrollment takes place on a fixed offer at the level of educational institutions and generally with a lower passing grade than defined by the MES of Ukraine.

One of the levers for influencing the demand for educational services in 2020 will be the indicative cost of training - a certain amount of expenditure per student in each individual HEI for the separately defined specialities, which will determine the minimum amount of tuition fees under the terms of the contract in state HEIs.

**Table 1** - HEIs' Key Performance Indicators in 2019

Indicator	Total	The form of the HEI ownership			
		state	private	public	corporate
The number of HEIs, units.	1143	679	266	197	1
including by type of ownership					
colleges, technical schools, training schools	720	424	123	172	1
universities, academies, institutes	423	255**	143	25	0
The student population of HEIs, thou people*	1,441.74	1,205.45	77.30	158.13	0.86
including the educational (academic) level					
Master	309.44	277.35	27.70	4.40	0.00
Specialist	30.91	28.24	2.66	0.02	0.00
Bachelor	735.37	646.48	16.37	72.53	0.00
Junior Specialist, Junior Bachelor	366.01	253.39	30.58	81.19	0.86

\* - data as of 01.01.2020

**Source:** developed by the author on the basis of the Unified State Electronic Database in Education and State Statistics Service of Ukraine

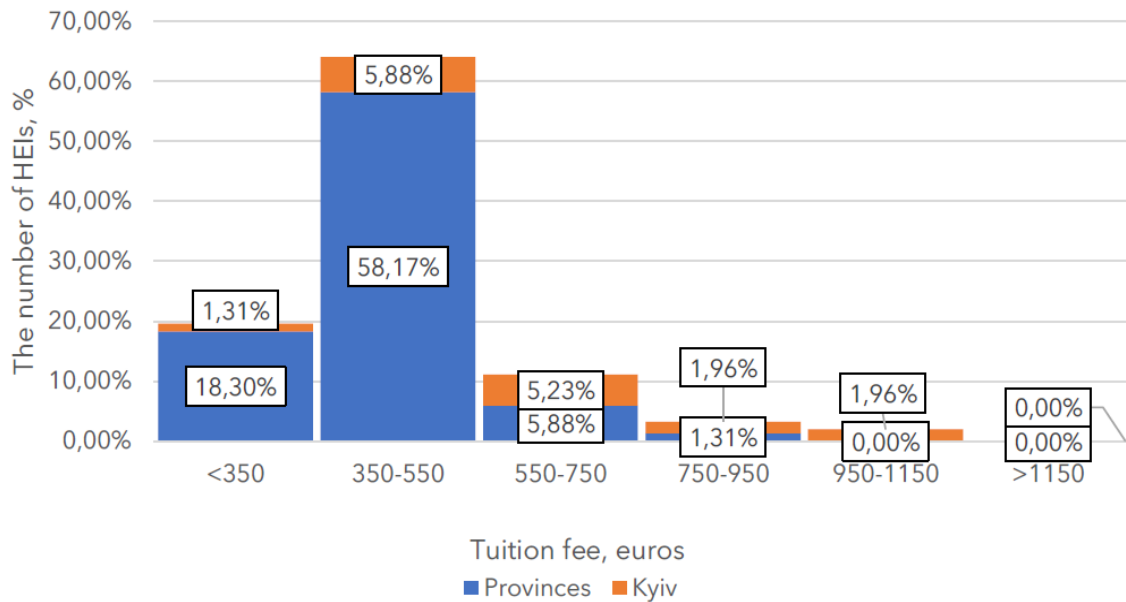
Thus, according to the Ministry of Education and Science of Ukraine, the average annual cost (amount of payment) of tuition per student at the expense of the state budget in Ukraine in 2019 is 43.0 thousand UAH, and at the expense of individuals (legal entities) under the contract - 16.5 thousand UAH [Stadnyy, 2020].

In 2020, the minimum cost (minimum tuition fees) on a full-time basis at the Bachelor's EL under the terms of the contract according to the basic provisions on the indicative cost of training will be determined as 60% of the average actual (cash) costs of a particular educational service provider for the previous calendar year per one estimated applicant for higher education, and from 2021 as the average amount of budget allocations of the general fund of the state budget per student in the amount of (70% - 2021, 80% - 2022) [Resolution of the Cabinet of Ministers of Ukraine № 191 "Some issues of introduction of indicative cost", 2020].

In the case when the indicative cost of education is more than 3 times higher than the value of the regional average monthly salary, this indicator (3 times the size of the regional average monthly salary) can serve as an indicative cost of education (hereinafter IC).

We defined 12 fields of study with a specific list of the most popular specialities, with an indicative list of 37 titles. In order to carry out a more detailed analysis of the impact of the

indicative costs introduction, we analyze the statistical characteristics of tuition fees in 2019 in the state and private sector of education on the example of the speciality 051 "Economics" (Fig. 1). Data for Kyiv are separated due to the presence of a significant asymmetry in the direction of increasing the tuition fees.



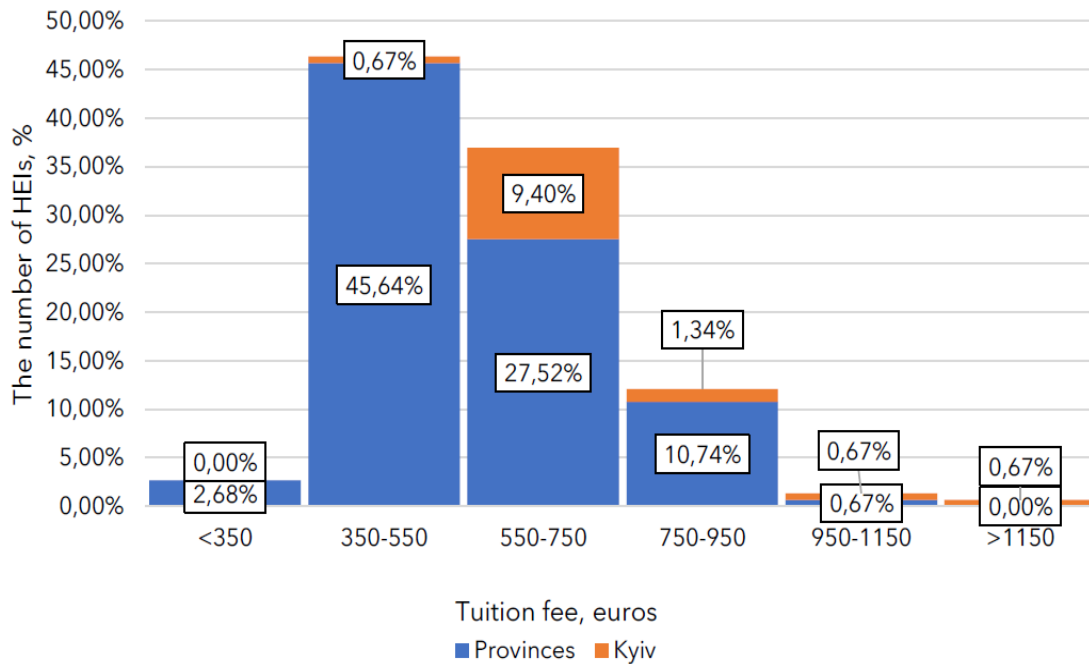
**Figure 1** - Tuition fees per one academic year at the Bachelor's EL at the full-time department on the example of speciality 051 "Economics" in 2019

**Source:** developed by the authors on the basis of aggregate data on tuition costs at HEIs in speciality 051 "Economics" in 2019 on a competitive basis as of July 16, 2020

On the assumption of the probability distribution of tuition fees within each step of the bar graph the distribution median of the price of attendance for the speciality "Economics" is 445 euros and the statistical expectation is 458 euros. Taking into account the ratio of students at state and private HEIs, which is approximately 1/10 (Table 1), we may conclude that these indicators determine with great confidence the pricing strategy of state HEIs. At present, within the timeframe of April to May 2020 [Ministry of Education and Science of Ukraine, 2020], the MES of Ukraine already has information on the established indicative cost in each of the HEIs subordinated to the MES of Ukraine. It should be emphasized that the indicative cost of education (IC) was defined as the only indicator in the HEIs, regardless of the specialties represented in them. The actual cost takes into account a wider range of other factors, but with a minimum cost (IC) of training. There is no doubt that this indicator will affect the determination of the tuition fees, not only in state but also in private HEIs, so we will analyze this indicator in more detail (Fig. 2).

In the central part of the distribution in the range of 350-750 euros, where more than 2/3 of the HEIs are concentrated, there was a shift of 17% of HEIs by 1 step of the bar chart (200 euros) in the direction of increase. The right tail of the distribution has not changed much and, most likely, the cost will not be significantly increased relative to the IC. Thus, the universities in the right tail of the distribution (the Taras Shevchenko National University of Kyiv (KNU), the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (NTUU "KPI"); Kyiv National University of Culture and Arts, Odessa Institute of Trade and Economic KNTEU, Prydniprovsky State Academy of Physical Culture and Sports and

others) confirmed that their pricing is based on the cost of education, not the desire to exploit their high image.



**Figure 2** - The minimum cost of education (IC) at the Bachelor's EL at the full-time department in 2020

**Source:** developed by the author on the basis of the Unified State Electronic Database in Education of Ukraine, Ministry of Education and Science of Ukraine on a competitive basis as of July 16, 2020

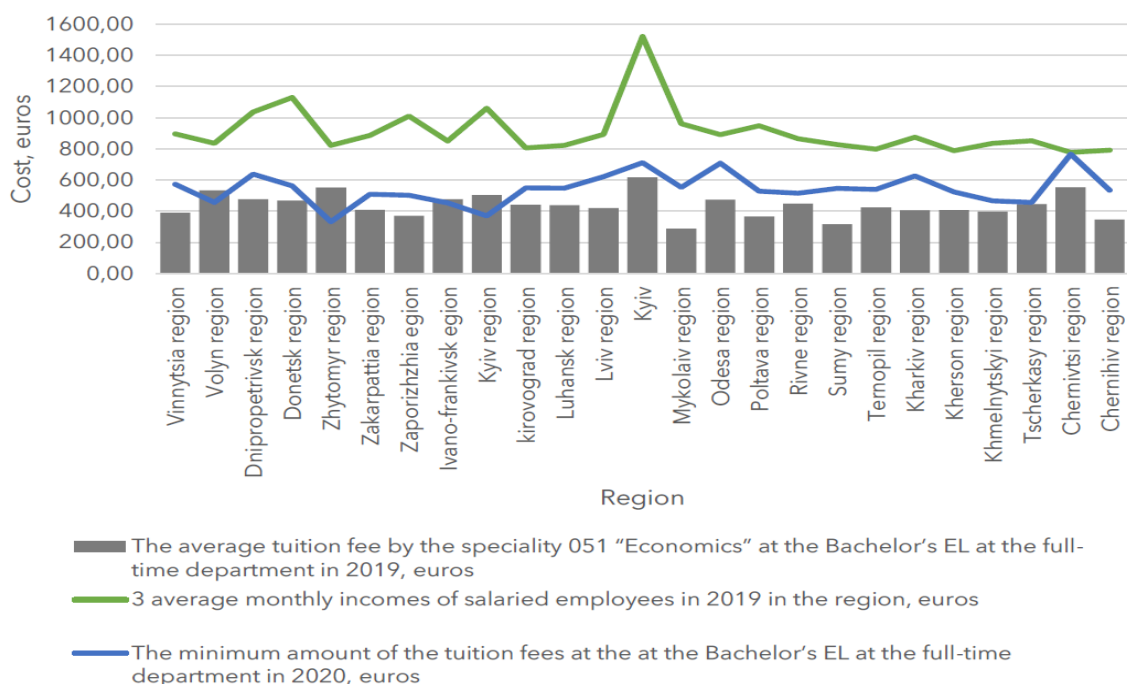
The median distribution increased to 555 euros and the mathematical expectation to 580 euros. Since one of the tasks of introducing the indicative cost of education was to compare the possibilities of private and state higher education, this step may be more effective. In Ukraine, being an excessively centralized country, there is a significant regional differentiation in the level of wages and salaries, which cannot but affect the market of educational services. Figure 3 presents indicative costs in selected regions based on HEIs data (at present the MES site already provides data on the IC data for individual HEIs [Kostenko, 2020]). Based on the results of calculations for almost all territory administration units (oblasts/cities) the minimum cost (IC) for 2020 will be higher than the tuition fee for the "Economics" speciality in 2019, except for Volyn, Zhytomyr, Ivano-Frankivsk and Kyiv and Chernivtsi regions (Fig. 3). At first glance, one can expect that the IC will be determined to a large extent by the tuition fees on a contractual basis (contract) in 2019, but this has not happened, since the correlation coefficient, though positive, is not significant (Table 2). The absolute leader by the cost of education in 2019 was the city of Kyiv, but the largest indicative cost of education - 767 euros - was in Chernivtsi region, while in Kyiv it does not exceed 700 euros. With regard to the definition of the IC at the expense of regional remuneration for work, it turned out to be much higher than the IC as defined by HEIs and therefore will not be implemented. Based on the information obtained, we may draw a conclusion, that the price quote of HEIs and the indicative cost of education are calculated according to completely different algorithms, which are based on different target functions except the HEIs, which are, according to econometric analysis, elite ones and support their own image by establishing the appropriate IC.

**Table 2** - Descriptive statistics of indicative cost for 2020 and the tuition fees in the speciality "Economics" for 2019

Indicators	The minimum cost of education at the Bachelor's EL, full-time department (weighted average) in 2020, euros	The average cost of education by the speciality "Economics" at the Bachelor's EL, full-time department in 2019, euros
Mean value	544.5	439.4
Standard deviation	99.3	76.1
Minimum	332.9	289.4
Maximum	766.7	616.7
Correlation ratio between indicators	0.11	

**Source:** developed by the author on the basis of the Unified State Electronic Database in Education of Ukraine, Ministry of Education and Science of Ukraine and State Statistics Service of Ukraine on a competitive basis as of July 16, 2020

The significant difference in compensation rates in Kyiv makes it extremely attractive for investment in private education. As of September 2020, the number of registered private higher education institutions in Ukraine increased by 25% compared to 2019 (the current number of HEIs is 202), among which 38 of HEIs are located in Kyiv [Open data of the Unified State Electronic Database on Education, 2020]. Thus, it is possible to state the fact of increased interest in investing in private higher education as a result of the introduction of IC.

**Figure 3** - Comparative characteristics of the cost of education for 2019 and two options for assessing IC

**Source:** developed by the authors on the basis of consolidated data on the cost of education in HEIs by the speciality 051 "Economics" in 2019 and data from the State Statistics Service of Ukraine on the average monthly salary

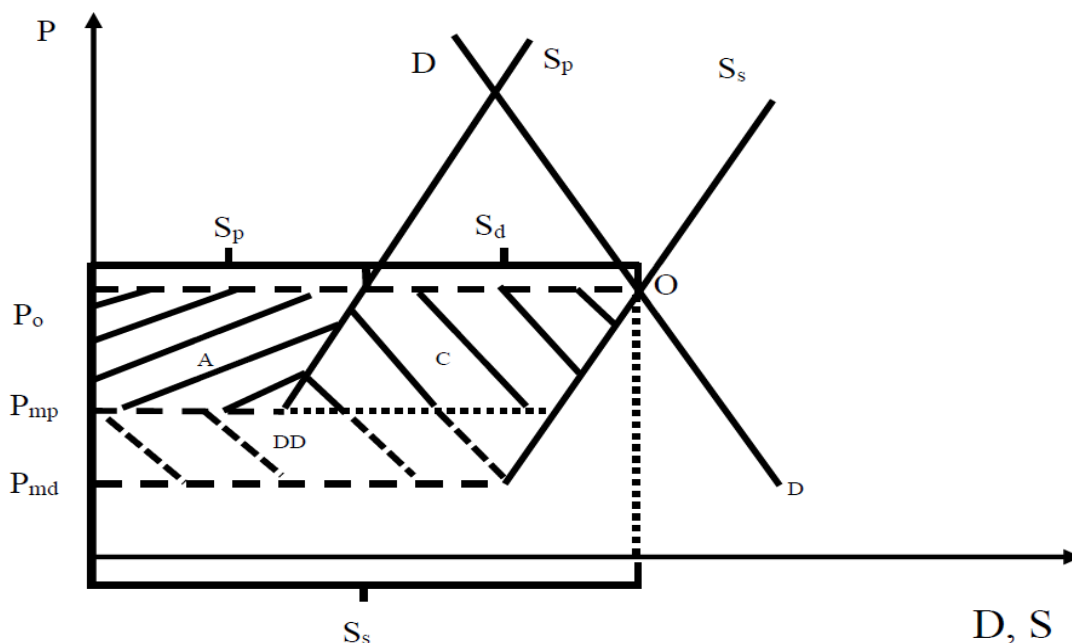
Later we will consider in more detail how the introduction of indicative cost of education will affect the shift of the equilibrium point of the cost of educational services, which will be established in the educational market. The situation on the market of educational services, which existed in 2019, is presented in Fig. 4.

The offer of educational services in private HEIs and the general supply curve  $S_s$  are presented separately. At a conditional equilibrium value of  $P_0$ , for which we can take the weighted average cost of one year of study in the speciality "Economics", the number of applicants under the contractual terms to state and public HEIs significantly outnumber the indicator of private HEIs (Table 1).

Given that the minimum cost of education services may be lower in state HEIs (dumping strategy), the demand for their education services was habitually higher and the revenues of state HEIs were significantly higher than those of private HEIs in 2019 (price dumping refers to the price offer below the minimum offered by private HEIs).

To summarize briefly, figures for 2019 at the state HEIs show absolute superiority, both in terms of number of applicants and in terms of income received [Open data of the Unified State Electronic Database on Education, State Statistics Service of Ukraine, 2020].

According to the data provided by the MES of Ukraine (Table 2), the indicative cost of education exceeds the equilibrium tuition costs in the absolute majority of the regions, so we will further consider how introduction of IC, exceeding the equilibrium tuition costs, will affect the market of educational services (Figure 4).



**Figure 4** - Demand and supply for higher education prior to the introduction of indicative cost of educational services (on the example of speciality 051 "Economics")

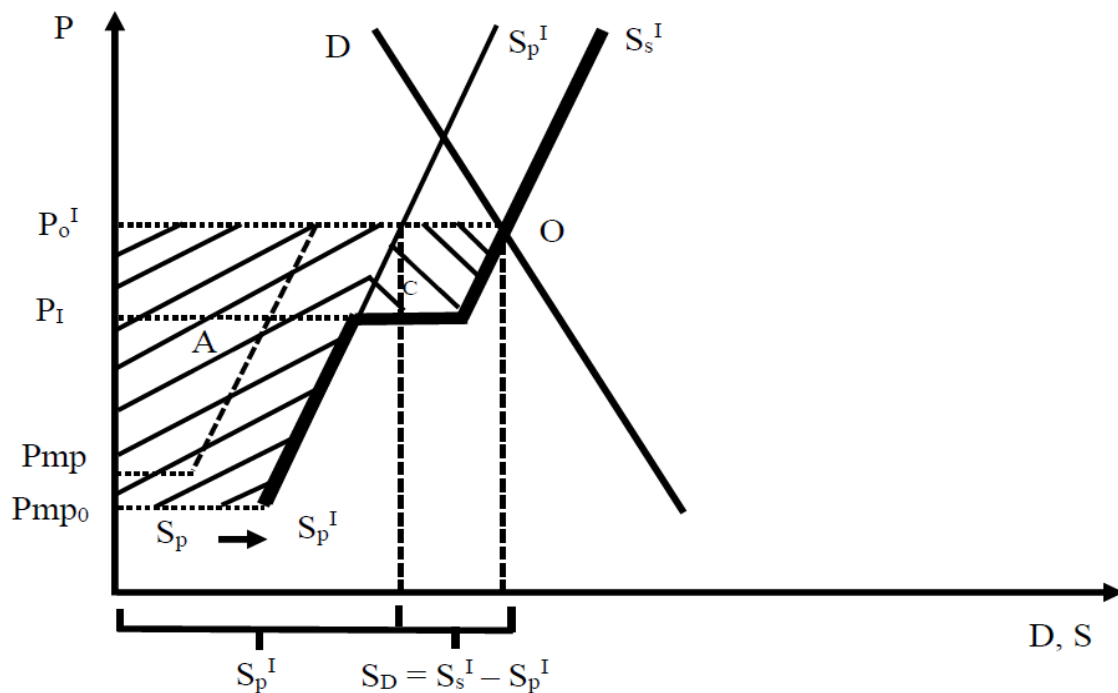
$S_p$  - offer of educational services of private HEIs,  $S_s$  - aggregate offer of educational services,  $O$  - equilibrium point,  $P_0$  - equilibrium cost of HEIs educational services,  $P_{md}$  - the minimum cost of educational services in state HEIs,  $P_{mp}$  - the minimum cost of educational services in private HEIs,  $A$  - the income of private HEIs,  $C$  - the income of state HEIs,  $DD$  - dumping income of state HEIs.

**Source:** developed by the authors.



In this case, the proposal at a cost lower than the indicative cost of education will be formed largely at the expense of private HEIs (some share remains with state HEIs, which are not subordinated to the Ministry of Education and Science of Ukraine), which increased both accreditation and tuition fees [Open data of the Unified State Electronic Database on Education, 2020; Open data of the Information system "Competition", 2020; Open data of the Information system "Search for applicants", 2020], which corresponds to the shift of the supply curve of private HEIs from the perspective of Spl. Upon reaching the indicative cost of education, the supply curve will shift to the value of the supply of state education at a cost that approaches the indicative cost of education and will become the total supply curve -SSI (Figure 5).

The question arises whether the supply of private HEIs and a small share of state HEIs can meet the low-income share of demand for educational services that exists in Ukraine. Most likely not, and this is in line with the desire to reduce the excessive mass of Ukrainian education.



**Figure 5** - Transformation of supply and demand for higher education resulting from the introduction of indicative cost of educational services, where the minimum cost will be higher than the equilibrium of  $P_I > P_0$  (on the example of speciality 051 "Economics") where  $P_I$  - fixed minimum tuition costs for state HEIs based on IC,  $P_0$  - equilibrium cost of educational services after the introduction of IC,  $P_{mp}$  - the minimum cost of educational services in private HEIs,  $P_{mp0}$  - the minimum cost of educational services in private HEIs after the introduction of IC,  $S_p$ ,  $S_{pI}$  - the offer of educational services of private HEIs before and after the introduction of IC,  $S_{sI}$  - aggregate offer of educational services after the introduction of IC,  $S_{dI}$  - the offer of state HEIs, A - gain (income) of private HEIs, C - gain (income) of state HEIs

**Source:** developed by the authors

The equilibrium point is shifted towards a higher value and a lower equilibrium supply relative to the 2019 equilibrium point.

In a corrupt society, there is a strong tendency to use education as a source of administrative rather than human capital [Skrypnyk, Klymenko & Kostenko, 2020; Skrypnyk & Oborska, 2016]. Besides, the availability of excessively cheap education, which cannot be of good quality because of the low remuneration of teachers, cannot but contribute to a highly corrupt learning process, because one party is seeking only a certificate of education and the other (teachers) additional means of survival. Therefore, the forced abandonment of the dumping strategy of a number of state HEIs is quite a positive and reasonable step in the process of educational regulation. The absence of a state dumping strategy will also have a positive effect on the price offer of private HEIs. According to the data of 2020, it can be concluded that private education has responded to the introduction of IC with significant increases in tuition fees, which are close to the minimum cost set by the state HEIs.

It should be emphasized that the indicative cost of education determines only the minimum tuition fee, as opposed to the final cost of admission under the terms of the contract in state HEIs. The uncertainty of the effects of the pandemic (declining incomes of the population, limited learning opportunities in EU countries) adds further uncertainty to the parameters of the 2020 university admissions process.

**Conclusions.** Since 2014, a fundamentally new stage in the reform of higher education has begun in Ukraine, aimed primarily at improving its quality and bringing the level of its graduates training to European standards. For a number of reasons, this is currently not possible without reducing its accessibility [Stadnyy, 2020; Skrypnyk & Kostenko, 2020; Kvit, 2019; Press Service of the State Audit Office of Ukraine, 2019; Skrypnyk & Oborska, 2017; Finikov, 2012]. It should be emphasized that Ukrainian higher education remains almost 90% state, given the general distribution of the number of students enrolled in state and private HEIs. State HEIs also offer training under the terms of contract and the number of applicants on contractual basis, based on the data of 2019, can significantly exceed the indicators of private HEIs.

The statistical analysis was carried out on the basis of the estimates of the indicative cost of education, conducted by individual HEIs, and statistical data from observations of the distribution of average monthly salaries in different regions of Ukraine and in the city of Kyiv, which may be also considered as an indicative cost. It was found that, for the absolute majority, the indicative cost of training on the basis of the costs of the HEIs was significantly lower than the three-fold legal average monthly salary in the regions of Ukraine and Kyiv. A comparison of the indicative cost with the averaged cost of education by the speciality "Economics" was made in 2019 both in the regional context and in the context of individual HEIs. The findings prove that only in four regions of Ukraine the indicative cost is lower than the cost of training under the contract in the speciality "Economics". The average indicator of the indicative cost exceeds the average tuition fees in the speciality "Economics" in 2019 by more than 100 euros.

Based on the graphical analysis of supply and demand for private and public higher education institutions, it is shown that over time the ratio of private and public HEIs under the terms of the contract may change significantly due to the redistribution of student body and income they provide. This is primarily due to the impossibility of

using the dumping strategy by the public HEIs after the introduction of the indicative cost of education. As a result, there will be a shift of the equilibrium point for most in-demand specialities in the direction of increasing the cost of training and reducing the volume of final contracts between the applicants and higher educational institutions. It should be emphasized that improving the quality of educational institutions in Ukraine is an extremely difficult task that can be solved by changing public attitudes to education as a source of administrative capital. In the future, it is planned to conduct research on the changes that have taken place in the Ukrainian higher education based on the results of university admissions process in 2020, which included restrictions on the minimum tuition fee for the students under contract (fee-paying students).

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Received: 26.10.2020  
Accepted: 30.10.2020  
Published: 31.10.2020

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**ECONOMIC VIOLENCE AS A TYPE OF DOMESTIC VIOLENCE: STATUTORY  
REGULATION AND THE FIRST EXPERIENCE OF APPLICATION OF THE CRIMINAL  
LEGISLATION OF UKRAINE**

**Abstract.** The criminal liability for economic violence in Ukraine as one of the types of domestic violence was analyzed in the article. Interpretations of such types of economic violence as intentional deprivation of housing, food, clothes, other property, money and documents or opportunity to use them, leaving without care or guardianship, preventing in receipt of necessary services in treatment or rehabilitation, ban to work, coercion to work, ban to study and also other offenses of economic nature.

It was established that the intentional deprivation of housing, food, clothes, other property, money or documents should be understood as conditions under which the victim cannot use this property in full because it has been spent on the guilty person's own needs, transferred to third parties, destroyed or damaged, etc. It was noted that the relevant property may belong to the offender or the victim. In turn, deprivation of the opportunity to use this property means that the victim is either limited in time to use these items, that is cannot use them constantly, but only for a certain time or with a certain frequency and/or cannot use this property to the extent which deems it necessary. Separation of these types of economic violence from crimes such as abuse of guardianship rights, evasion of alimony payment for child support, evasion of money payment for keeping of disabled parents, and malicious failure to care for a child or a person in custody or care was done.

It was stated that committing such a type of economic violence as a ban on work or unlawful force to work, the offender against the will of the victim at his own discretion determines whether the victim has the right to realize his right to work or vice versa to force the victim against his will to work or overwork or perform the work chosen by the offender himself, not the victim. In this case, the aggressor may not work himself at all. This type of economic violence was separated from such crimes provided by other articles of the Criminal Code of Ukraine as the exploitation of children and the use of a minor child for begging.

The attention was focused on the fact that the list of types of economic violence for which criminal liability may occur has an open character. This approach of the legislator makes the norm more flexible in application but significantly complicates its interpretation.

**Keywords:** domestic violence, economic violence, financial violence, economic offenses, physical violence, psychological violence, criminal liability

Formulas: 0, fig.: 0, tabl.: 0, bibl.: 40

**JEL Classification:** A12, A13, K14, K49

**Introduction.** One of the types of domestic violence is economic violence according to the provisions of the Council of Europe Convention on the prevention of violence against women and domestic violence and the combating of such events (hereinafter - the Istanbul Convention), for committing of which the criminal liability has recently been introduced in Ukraine in Art. 126-1 of the Criminal Code of Ukraine (hereinafter - CC of Ukraine)<sup>1</sup> [Council of Europe Convention]. The implementation of the provisions of international legislation in the field of combating domestic violence into the criminal legislation of Ukraine has contributed to Ukraine's approximation to international standards in this area.

**Literature review and the problem statement.** Attention on the study of international, foreign and Ukrainian legislation on criminal liability for domestic violence in general and economic violence in particular was dedicated in the works of P.S. Bilenko [Bilenko 2019], O.O. Dudorov [Dudorov, Havroniuk 2019], Z.A. Zahynei-Zabolotenko [Zahynei-Zabolotenko 2019], O.O. Knyzhenko [Knyzhenko 2019], O.V. Kharytonova [Kharytonova 2018], and a number of other scientists. The work of these and other authors proves that economic shocks can have significant consequences for the well-being of the household, even ending in violence from close partners [Cook, Taylor 2019; Harney 2011]. And preventing domestic violence can significantly reduce the cost of overcoming their effects. Thus, in the United States, the estimated cost for coping with the consequences of violence caused by the partner was \$ 103,767 per woman victims and \$ 23,414 per male victims. That is, the economic burden of the population was almost 3.6 trillion dollars (2014 US dollars) during the lives of victims. This estimate included, in particular, 1.3 trillion dollars (37% of all costs) - loss of labour productivity among victims and perpetrators, 73 billion dollars (2%) in criminal law activities and 62 billion dollars (2%) of other costs, including loss or damage to the victim's property [Peterson, Kearns, McIntosh, Estefan, Nicolaidis, MCCollister, Gordon, Florence 2018]. Studies in some countries, such as Northern Ireland, show that economic violence is even more common than physical or sexual violence [Doyle 2020]. Strong links between shortages of food and housing and the partner violence were found [Breiding, Basile, Klevens, Smith 2017].

The rapid transition in modern conditions to remote forms of work, study, trade [Kwilinski, Volynets, Berdnik, Holovko, Berzin 2019], as well as the development of technology and changes in people's daily life within, for example, the concept of the fourth industrial revolution (Industry 4.0.) [Dzwigol 2020; Dzwigol, Dzwigol-Barosz, Miskiewicz, Kwilinski 2020; Miśkiewicz 2019; Miśkiewicz, Wolniak 2020] led to the transfer of a significant number of economic relations to the digital environment [Kwilinski, Vyshnevskiy, Dzwigol 2020; Melnychenko, Hartinger 2017; Melnychenko 2020] and this, accordingly, affects not only the change in relations between economic

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<sup>1</sup> This article provides for the criminal liability for «domestic violence, that is the intentional systematic acts of physical, psychological or economic violence against a spouse or former spouse or another person with whom the perpetrator is (was) in a family or close relationship, leading to physical or psychological suffering, health disorders, disability, emotional dependence or deterioration of the quality of life of the victim».

entities, production processes, supply chains, but also each person, as their habits, environment, surrounding, etc. change.

Thus, recent studies also concern the impact of COVID-19 on domestic violence and prove that the consequences of social distancing are, among other things, economic stress, which exacerbates domestic violence [Agüero 2021; Bright, Burton, Kosky 2020; Leslie, Wilson 2020].

At the same time, the existence of quite different points of view on the interpretation of the characteristics of economic violence, as well as the lack of established practice of criminal prosecution for committing this crime necessitates further research in this area.

The purpose of the article is to consider different approaches to the interpretation of economic violence, identify problematic aspects of law enforcement practice in this sphere and develop a scientific position to solve this issue.

**Research results.** First of all, it should be noted that the Istanbul Convention, in contrast to the terms of «physical violence», «psychological violence», «sexual violence» does not disclose the meaning of the concepts of «economic violence», but only states that it is a component of «domestic violence» (p. «b» of Art. 3). This necessitates the signatory countries to define this concept themselves and to establish the limits of illegal behaviour in this sphere.

Scientific literature of foreign countries describes economic violence/economic abuse as a form of violence when one of the close partners controls the other partner's access to economic resources, undermines his/her ability to access economic resources independently and creates financial dependence on the male/female partner [Anderberg, Rainer 2013; Bulte, Lensink 2020; Henke, Hsu 2020; Huang, Postmus, Vikse, Wang 2013; Stylianou 2018]. Financial abuse is connected with financial impropriety, including the illegal or unauthorized use of property, money, pensions or other valuables (including a change in a person's will to determine an heir). Financial abuse is a part of elder abuse [Chez 1999; Collins 2016] and domestic violence [Mshweshwe 2020]. Economic violence is a broader concept than financial violence, it also covers control over current or future income and opportunities, in particular through restrictions on access to work and/or education [Zharova, 2018]. Occasionally, we would like to draw your attention to the fact that Section XXVI «Crimes against the family and guardianship» of the Penal Code of the Republic of Poland provides for criminal liability only for certain expressions of economic violence. Thus, Article 207 of this Code speaks about physical or mental abuse of an intimate partner.

In turn, Art. 209 of this Section provides for criminal liability for malicious evasion of the obligation imposed on him by law or court decision on care by failure to provide funds for keeping of a close or other person, and Art. 210 - for leaving a person of youth age above 15 or a person who, depending on his mental or physical condition, is helpless, if the guilty person was obliged to take care of these victims.

In the legislation of Ukraine, the definition of the concept of «economic violence» is not enshrined in Art. 126-1 of the CC of Ukraine, but in p. 4 of Art. 1 of the Law of Ukraine «On prevention and counteraction to domestic violence» of December 7, 2017 (hereinafter - the Law), according to which economic violence is a the form of domestic violence, including intentional deprivation of housing, food, clothes, other property, money and documents or opportunity to use them, leaving without supervision or



guardianship, preventing in receipt of necessary services in treatment or rehabilitation, ban to work, coercion to work, ban to study and also other offenses of economic nature.

Consolidation of the concept of «economic violence» at the legislative level necessitates the interpretation of its features in order to ensure the unity of law enforcement practice and understanding that Ukraine in accordance with international law fully ensures the criminal prosecution of this socially dangerous act.

The first form of economic violence is the intentional deprivation of housing, food, clothes, other property, money or documents, which means that the offender creates the conditions under which the victim cannot use this property in full because it has been spent on the guilty person's own needs, transferred to third parties, destroyed or damaged, etc. Herewith, the relevant property may belong to the offender<sup>2</sup> (for example, it may be his salary, real estate, food and clothing purchased by him) or the victim (personal belongings, earned money, other property).

In the case of deprivation of property belonging to the victim, the question arises about the qualification by other components of crime. As noted by M.I. Havroniuk, the subject of influence in economic violence is the property and property rights of the victim. In his view, if such influence is combined, for example, with the direct seizure of his property or with the demand for the transfer of property, property rights or acts of a property nature in favour of the aggressor, or with the deliberate destruction of property, then these actions under necessary grounds should additionally qualify under Art. 186, 189 or 194 or under another relevant article of the CC of Ukraine [Dudorov, Khavroniuk, 2019]. Here it is necessary to make one specification. Certain expressions of economic violence require additional qualification only if the sanction of the relevant article is more severe than the sanction of Art. 126-1 of the CC of Ukraine. Otherwise, the principle of non bis in idem will be violated.

Another form of economic violence is the deprivation of the opportunity to use housing, food, clothes, other property, money or documents, which means that the victim is either limited in time to use these items, that is cannot use them constantly, but only for a certain time or with at certain intervals (for example, cannot wear certain clothes at dinner, is not allowed to eat at certain times, is not allowed to take documents when leaving his home on his own) and/or cannot use this property to the extent which he deems necessary (for example, cannot eat food in sufficient quantities, cannot spend money more than the established limit or to purchase certain things, cannot carry documents when he is outside his home).

Characterizing the above types of economic violence, Art. 167 «Abuse of the rights of guardian» of the CC of Ukraine should be mentioned about. The objective aspect of the crime under this article is the use of guardianship or custody to the detriment of the ward. This form of the objective aspect is based on the commission of actions or omissions, as a result of which the ward may be harmed. The legislator in the text of Art. 167 of the CC of Ukraine mentions only two ways of committing a crime: unlawful occupation of residence and use of property. However, this list is not exhaustive, so the ways of abuse of guardianship

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<sup>2</sup> The fact that the property belongs to the subject of domestic violence based on the provisions of current legislation of Ukraine does not mean that he can spend it solely at his discretion and/or for his own needs. Thus, in accordance with Art. 59 of the Family Code of Ukraine, the spouse - owner of the property defines the way in which his/her property should be possessed and disposed of, subject to the interests of the family, and primarily the interests of the children (Part 1 of this Article). When administering his/her property, the wife, the husband should take into account the interests of the child, other family members who, in accordance with the law, has the right to dispose of such property. (Part 2 of this Article).

and care may be different. Misappropriation, embezzlement of property of the ward; concluding agreements on behalf of the ward on terms unfavourable for the latter, etc. are among them. The obligatory characteristics of the objective aspect of the crime under Art. 167 of the CC of Ukraine is commission of the abovementioned actions to the detriment of the ward. Such harm, as a rule, is of a property nature (for example, the use of social benefits in his favour, the use of property of the ward to obtain his own income, etc.), which is in part based on lucrative purpose of the committing of the crime [Dudorov, Pysmenskyi 2012]. Based on the characteristics of the objective aspect of this component of crime, it is difficult not to notice that it provides for criminal liability for certain expressions of economic violence mentioned above. Thus, deprivation of the ward of housing, food, clothes, other property, money or documents or the opportunity to use them, committed by a guardian or trustee for lucrative purpose, taking into account the sanction of Art. 167 of the CC of Ukraine, except for Art. 126-1 of the CC of Ukraine requires additional qualification under this article.

Leaving without care or guardianship means the periodic or permanent non-fulfillment by a guilty person of the obligations provided by the current legislation to provide care and/or guardianship for family members or other victims who need it. By construction, this type of economic violence is expressed in the form of omission.

The obligation to perform care for and/or guardianship for a spouse or former spouse or another person with whom the perpetrator is (was) in a family or close relations is provided by current legislation. Thus, in accordance with p. 2 of Art. 76 of the Family Code of Ukraine (hereinafter - FC), a person has the right to maintenance after marriage dissolution if he/she became unable to work before marriage dissolution or within one year after the date the marriage has been dissolved and if he/she needs material support and if the former husband, the former wife is able to provide such material support. A person is entitled to maintenance if he/she became unable to work after one year from the date of marriage dissolution has elapsed as long as his/her disability resulted from unlawful behaviour the former husband, the former wife manifested in his/her respect in marriage. The maintenance is provided to one of spouses by the other spouse in kind or cash form upon their consent (p. 1 of Art. 77 of the FC). Upon court's decision, the maintenance is awarded to one of spouses, as a rule, in cash form (p. 2 of Art. 77 of the FC).

The obligation to act cannot lead to liability for omission if the person has not been able to act in a certain way. The ability to act is determined by a subjective criterion; that is the ability of a person who is in certain circumstances is taken into account. If the necessary actions have not been performed by a person for reasons beyond his control, criminal proceedings cannot be instituted against the person for omission [Kovalev, Kondrashova, Neznamova, Kozachenko 1999]. Thus, in accordance with p. 4 of Art. 76 of the FC, whenever one of spouses was unable to obtain an education, be employed or hold an appropriate position because of bringing up a child, keeping household, caring about family members, being ill or owing to any other circumstances whatsoever, he/she is entitled to a maintenance in connection with marriage dissolution even if he/she is employable, on condition that he/she needs material support and that the former husband, the former wife is able to provide such material support. Therefore, if the former spouse is not able to provide material support, the liability for leaving without care and/or guardianship as a form of economic violence is excluded.

Leaving without care and/or guardianship, as a form of the objective aspect of domestic violence, should represent several acts of passive behaviour, that is to create a system of criminal behaviour. Thus, for example, it is noted in the legal literature that when one of the child's parents after divorce, living separately, is not deliberately employed officially with the aim to pay the minimum amount of alimony and for a long time avoids additional costs for the child, such actions can also be regarded as economic violence against a child and former spouse [Dudorov, Havroniuk, 2019].

But in some cases, criminal omission can be combined with active actions by which the subject of the crime will evade the duties assigned to him. In such cases, active actions will be a way of this type of economic violence. However, the objective aspect of this component of crime will be criminal omission. Thus, for example, evasion of alimony payment may be combined with the systematic concealment of all or part of the income by the perpetrator.

Disclosing the content of this form of economic violence, one cannot ignore other components of crime provided for in the CC of Ukraine, which already provide for criminal liability for certain expressions of leaving without care or guardianship. These are Art. 164 «Failure to pay alimony for support of children», 165 «Failure to pay contributions for support of parents unable to work» and 166 «Persistent failure to perform duties related to the care of a child or a person under guardianship or in the custody» of the CC of Ukraine.

We support the position of O.O. Knyzhenko who states that when a person who is obliged to pay alimony does not pay it systematically for a long time, then his actions are covered by two norms. Firstly, Art. 126-1 of the CC of Ukraine, as there is systematic economic violence, which leads to a deterioration in the quality of life of the victim. Secondly, in addition to the above, it is also about Art. 164 of the CC of Ukraine (or Art. 165 of the CC of Ukraine). In this example, systematic economic violence is nothing more than malicious evasion of alimony paying. There is already a special norm in the legislation of Ukraine, which establishes criminal liability for economic violence against such close persons as children and parents. There is no criminal liability in Ukraine for non-payment of alimony for a spouse (former spouse). In the case of qualification of malicious evasion of alimony paying for the maintenance of children (parents) for a cumulation of crimes, that is under Art. 126-1 and under Art. 164 or Art. 165, accordingly, of the CC of Ukraine, there will be a double incrimination, which violates the constitutional principle enshrined in Art. 61 of the Constitution of Ukraine. Evasion of alimony paying as an element of the component of crime is possible only for relatives. It is impossible to commit this crime against a stranger. Since the law does not recognize any non-payment of alimony as a crime, but only malicious (malice occurs in the case of systematic actions), then such acts are nothing but economic violence, which consists in the systematic non-payment of alimony. Given the fact that Law includes to economic violence other actions (for example, deprivation of housing, leaving without care or guardianship, ban to work, etc.) in addition to deprivation of money, then the norm enshrined in Art. 164 (Art. 165) of the CC of Ukraine is special in relation to that described in Art. 126-1 of the CC of Ukraine. That is, in cases when economic violence is expressed in alimony non-payment for child (parents) support, such actions are qualified by a special norm – Art. 164 or Art. 165 of the CC of Ukraine. Art. 126-1 of the CC of Ukraine is for the cases of non-payment of alimony in respect of the former spouse [Knyzhenko, 2019].

The question arises whether such a differentiation of criminal liability for homogeneous actions is appropriate? In our opinion, it is not appropriate. In this regard, we believe that the liability for malicious evasion of payment for the maintenance of the spouse (former

spouse) should also be provided in Art. 165 of the CC of Ukraine. In this regard, p.1 of this article should be supplemented with the phrase «or spouse (former spouse)» after the words «disabled parents».

Malicious non-fulfillment of duties for the care of a child or a person in respect of whom guardianship or custody has been established which has caused serious consequences also do not require additional qualifications under Art. 126-1 of the CC of Ukraine, as such actions are fully covered by Art. 166 of the CC of Ukraine, which is a special norm on domestic violence<sup>3</sup>. At the same time, these actions committed against other victims under Art. 126-1 of the CC of Ukraine, or if they did not cause serious consequences, under appropriate grounds, should be regarded as domestic violence.

Preventing in receipt of necessary services in treatment or rehabilitation means that the offender creates obstacles for the victim to receive the necessary medical services and/or rehabilitation after illness and/or medical intervention (does not allow to visit health care facilities, does not allow doctors to visit the victim, does not give permission for the operation, forces to do household chores instead of rest after a long-term treatment, refuses to pay for treatment in full or in part, etc.).

Ban to work or coercion to work primarily violates the requirements of Art. 43 of the Constitution of Ukraine, according to which everyone shall have the right to work, including a possibility to earn a living by labour that he freely chooses or to which he freely agrees (p. 1), the use of forced labour shall be prohibited (p. 2), everyone shall have the right to proper, safe, and healthy labour conditions and to remuneration no less than the minimum wage determined by law (p. 3), the employment of women and minors for work hazardous to their health shall be prohibited (p. 4). Committing this type of economic violence, the perpetrator against the will of the victim determines at his own discretion whether the victim has the right to realize his right to work or, conversely, to force the victim against his will to be engaged in work or overwork or work chosen by the perpetrator himself not by the victim. In this case, the aggressor may not work at all. The victim may be officially employed or not in an official employment relationship, receive a proper salary, part of it, or not receive a salary at all.

Considering this type of economic violence, it is necessary to mention the components of crimes provided for in Articles 150 «Exploitation of children» and 150-1 «The use of a minor for begging» of the CC of Ukraine. Taking into account the sanction of Art. 150 of the CC of Ukraine, the actions provided for in p. 1 of this article committed by a subject of

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<sup>3</sup> In the juridical literature it is noted that this concept, in the context of Art. 166 of the CC of Ukraine, is evaluative, and therefore the malice of such an action should be determined in each individual case. The malicious nature of non-fulfillment of the relevant duties may be evidenced, for example, by the duration, recurrence, systematic non-fulfillment, its continuation after warning of the need to fulfill the duty of child care and criminal liability for non-fulfillment of this duty by authorized bodies. However, in some cases, not only a prolonged or systematic non-fulfillment of the relevant duties, but also a one-time failure to perform them may be considered malicious. Serious consequences are also an evaluative category and can be expressed, for example, in the death or injury of a child or a person under guardianship or custody, their serious illness, the commission of a serious crime by them or their participation, the infliction of significant harm, etc. to a child or ward by actions. [Dudorov, Pysmenskyi 2012].

Studying the peculiarities of economic violence, U. Lukach notes that economic violence is a case when a woman wants to work or do something, but in fact cannot realize her desires because of the prohibition of her husband or other family members. In other words, it is a system of behaviour for keeping power and control over an intimate partner [Lukach, 2017].

domestic violence are fully covered by Art. 126-1 of the CC of Ukraine and do not require additional qualification under Art. 150 of the CC of Ukraine. Instead, the actions provided for in p. 2 and 3 of Art. 150 of the CC of Ukraine, except for Art. 126-1 of the CC of Ukraine, also require additional qualification under the relevant part of Art. 150 of the CC of Ukraine.

At the same time, while classifying the actions provided for Art.150-1 of the CC of Ukraine, the approach offered by O.O. Knyzhenko when separating the components of crime provided for Art. 126-1 of the CC of Ukraine and Art. 164, 165 of the CC of Ukraine should be used because begging means systematic wheedling of money, goods, other inventories from strangers according to p.1 of Art.150-1 of the CC of Ukraine. Judicial literature mentions that systematic character in Art. 150-1 of the CC of Ukraine is such begging of money happened tree times at time, but it is not important whether the child begged money in one or several persons [Dudorov, Pysmenskyi 2012]. The subject of the components of crime under p.1 of this article is the parents of the child or the persons substituting them. Thus, Art. 150 of the CC of Ukraine, in case of committing this crime by the parents or the persons substituting them, is a special criminal-and-legal norm concerning domestic violence.

The ban on study grossly violates human rights under p. 1 of Art. 53 of the Constitution of Ukraine according to which everyone has the right to education. In this case, full general secondary education is compulsory (p. 2 of this article), which means that obtaining this education is not a right but a duty of a person. The ban to study means that the offender does not allow the victim to realize his/her right to obtain pre-school, extracurricular, vocational and higher education, as well as creates obstacles for the victim to fulfill his/her obligation to complete general secondary education (ban on attending educational institutions, stay after school for additional classes, attend refresher courses, attend a tutor, etc.).

The list of types of economic violence is open because the definition of this concept enshrined in p. 4 of p. 1 of Art. 1 of the Law also deals with other offenses of economic nature. It is necessary to pay attention to two points to define correctly the meaning of this concept. Firstly, the definition of economic violence includes an open list of offenses of the economic nature. They have been analyzed above. Secondly, the legislator used the term «offenses of the economic nature» instead of «economic offenses». This, in turn, suggests that these concepts are not synonymous. Herewith, economic offenses are a component of offenses of the economic nature. Based on this, we can conclude that offenses of the economic nature should be understood as offenses that violate: 1) the right of ownership and/or other property rights of the victim; 2) labour rights of the victim; 3) the rights of the victim in the sphere of economic activity.

Other offenses of economic nature may include the following actions: concealment of income, disregard for the needs of the partner (for example, the wife, when shopping, must report to the husband of all expenses, so that the financial situation was under his «constant control»); a woman may hear reproaches of «being a drain on his pocket», even if she is on childcare leave and keeps a household, etc. [Kharytonova, 2018].

P.S. Bilenko identifies the following main features of economic violence: control over another person's finances; restricting the access of another person to the use of common property, manipulation of property rights as an advantage of one family member over another; threats to the victim to lose money, property or personal belongings in case of disobedience; restriction of another person's right to study or work; coercion into prostitution, begging, theft; denuding of money or documents from the victim; coercion

to transfer ownership of the victim's movable and immovable property; humiliation of the victim and psychological pressure because of the predominance of material property; manipulation of the victim's thoughts and desires by taking material resources and food from the victim [Bilenko, 2019].

Analysis of court decisions conducted by Z.A. Zahynei-Zabolotenko (the lawyer analyzed 84 sentences from the Unified State Register of Court Decisions (hereinafter - USRCD) as of October 15, 2019) shows that domestic violence was committed by using psychological or physical violence against the victim [Zahynei-Zabolotenko, 2019]. P.S. Bilenko also stated that economic violence was not used against the victims in any criminal proceedings under Art. 126-1 of the CC of Ukraine after analyzing the sentences placed in the USRCD as of October 1, 2019. The main forms of violence were psychological and physical ones [Bilenko, 2019].

Own analysis of 406 sentences passed in 2019 - the first half of 2020 and placed in the USRCD, allows us to conclude that this trend continues.

This trend seems rather surprising given that the results of the conducted sociological survey showed that almost half of women (48%) had been expelled from their homes in the last 12 months. Demands to report for every little thing spent and damage of property (32% in both cases) were next by frequency, partners refused to give money to their wives for household expenses, although they had them for their own purchases (20%). Other types of economic violence which were asked questions included embezzlement of money or property, disruption of work and career, and deprivation of the possibilities to meet basic needs.

According to the survey, economic violence in each its forms occurs more often than three times a year in most cases. The following is separately stood out: coercion to report on costs, refusal to give money and deprivation of opportunities to meet basic needs. The results of the survey show that the expressions of economic violence (if they occur) are almost always regular. In total, 68% of respondents suffered from economic violence, and 34% - with three or more forms simultaneously. That is, the respondents face economic violence much more often than physical or sexual violence, and it is close to psychological in essence [Summary report, 2015].

This state of affairs can be explained in particular by the fact that the pre-trial investigation bodies do not pay due attention to the investigation of the facts of economic violence or do not notice it.

Thus, PERSON\_1 was found guilty of committing a crime by the court sentence under Art. 126-1 of the CC of Ukraine for the fact that he, being repeatedly brought to administrative liability under Art. 173-2 CUoAV, being at the place of residence committed psychological violence against his mother PERSON\_2, which consisted of verbal abuse, humiliation of her dignity, the form of obscene language, intimidation and threats of physical violence against her.

Repeated intentional illegal actions by PERSON\_1 in relation to his mother PERSON\_2 led to physical and psychological suffering of the victim, deterioration of the quality of her life, which consisted in the form of fatigue, physical discomfort, negative feelings, loss of normal sleep and rest, including loss of positive emotions. The victim in court sitting explained to the court that the accused and his son PERSON\_3 lived with her since December 2014. The accused abuses alcohol, swears at her, and tells her to die. Also, the accused broke down the door, stole the TV set that was presented to her. Besides, PERSON\_1 took away the card

on which the pension of the grandson on loss of the breadwinner comes, and takes money from it for him. Currently, PERSON\_1 is not drinking, but she cannot live with him. Conflicts between her and her son have been going on since 2014, all conflicts are started by the accused. In August 2019, her son beat her [Verdict of the Shevchenkivsky District Court of Chernivtsi, 2020].

Expressions of economic violence, such as damage and seizure of the victim's property, as well as seizure of money calculated to the son of the perpetrator, immediately attract attention. However, the pre-trial investigation authorities ignored these facts and did not give them a proper criminal assessment.

In another case, PERSON\_1 was found guilty of systematic psychological violence, which was expressed, in particular, in the fact that PERSON\_1, being at his place of residence for no reason verbally insulted and humiliated his wife PERSON\_2, threatened her, told her obscenities and demanded to leave the place of her residence that is limited the right of his wife to use the summer kitchen where she lived. As a result of illegal actions by PERSON\_1, the victim PERSON\_2 suffered psychological suffering, which was expressed in fear for her safety, emotional depression, fatigue, loss of normal sleep and rest [Verdict of the Novyi Buh District Court of Mykolaiv region, 2020].

In this case, the court found that the perpetrator restricted his wife's right to use the summer kitchen where she lived. That is, a specific expression of economic violence was stated. Herewith, the bodies of pre-trial investigation qualified the above actions of PERSON\_1 under Art. 126-1 of the CC of Ukraine, as a deliberate systematic commission of psychological violence against a person with whom the perpetrator was in a family relationship, which led to psychological suffering of the victim. Therefore, in this case as well, the pre-trial investigation bodies did not provide a proper criminal-and-legal assessment of the facts of economic violence and did not reflect it in the charging document.

In this case, the court at its discretion cannot assess the above actions as economic violence, because in accordance with p. 1 of Art. 337 of the Criminal Procedure Code of Ukraine, the court proceeding is conducted only in respect of the person whom the charge was brought, and only within the charges in accordance with the charging document, except as provided in this article. In order to make a fair court decision and protect human rights and fundamental freedoms, the court has the right to go beyond the charges specified in the charging document, only in part of changing the legal qualification of the criminal offense, if it improves the situation of the person subject to criminal proceedings (p. 3 of this article).

**Conclusions.** The conducted analysis of the normative regulation of criminal liability for committing of domestic violence and the practice of its use allows us to draw several conclusions. Firstly, the CC of Ukraine provided for criminal liability for certain expressions of economic violence. Secondly, the Ukrainian legislator had approached the implementation of the provisions of the Istanbul Convention quite responsibly in this part providing for criminal liability for a fairly wide range of actions that can be attributed to domestic violence. As a result of such a broad approach, in some cases there has even been competition in criminal-and-legal norms. Thirdly, most types of economic violence are new to Ukraine's criminal legislation, unlike most types of physical and psychological violence. As a result, economic violence seems to be absorbed by physical and/or psychological violence, with the result that the law enforcement officers conducting a pre-trial investigation do not seem to notice it. And there are reasons for this. Until recently, these actions were not

considered something socially dangerous. Moreover, resolving a number of these issues was considered a purely family matter. This is primarily due to the established view of the role of a man, a woman and children in the family, relationships with other relatives, existing traditions, and so on as well as the attitude to other types of domestic violence.

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Received: 01.10.2020  
Accepted: 10.07.2020  
Published: 31.10.2020

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**МОЖЛИВОСТІ ТА ПЕРЕВАГИ ВПРОВАДЖЕННЯ ВІДКРИТОГО БАНКІНГУ**

**Анотація.** Технологічні інновації сприяють удосконаленню й розвитку онлайн платежів, включаючи цифрові гаманці, платежі P2P та послуги, що дозволяють здійснювати платежі в електронній комерції через існуючу інфраструктуру електронного банкінгу. Проблеми конфіденційності заважають власникам даних ділитися та обмінюватися ними поза їхніми установами через страх шахрайства та зловживань. Відкритий банкінг може сприяти досягненню максимальних вигод клієнтів завдяки обміну даними та більш глибокій співпраці між фінансовими установами. Усі компанії, що надають платіжні послуги в Європейському економічному просторі, повинні підтримувати вимоги другої версії Директиви про платіжні послуги, або PSD2, щодо доступу до рахунку. PSD2 регулює, що сторонні постачальники платіжних послуг мають право доступу до платіжного рахунку, що знаходиться у банках, для надання послуг з інформації про рахунок та / або послуг з ініціювання платежів. Для цього банки повинні забезпечити безпечний та відкритий інтерфейс для сторонніх платіжних систем для доступу до рахунку, звітування та ініціювання платежів.

В світлі оновлення Директиви Європейської комісії про платіжні послуги, спрямованої на покращення конкуренції та активізації економічної активності шляхом сприяння та заохочення власників банківських рахунків контролювано та безпечно надсилати дані своїх облікових записів, повстала проблема, пов'язана з необізнаністю клієнтів про можливості, переваги й безпеку під час здійснення операцій за принципами відкритого банкінгу. Це дослідження присвячене дослідженню поняття відкритого банкінгу, його економічній сутності, передумов, можливостей та ризиків впровадження, як нового способу використання платіжних послуг, введений директивою. Дослідження робить внесок в розвиток технології відкритого банкінгу та розв'язує порушену в роботі проблему - довіри з боку покупців до неї, від чого залежить успіх її впровадження й розвитку такої бізнес-моделі.

**Ключові слова:** відкритий банкінг, безготівкові розрахунки, безготівковий обіг, банківська система, банківські продукти/послуги

Формул: 0, рис.: 1, табл.: 1, бібл.: 47

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## THE OPPORTUNITIES AND BENEFITS OF OPEN BANKING IMPLEMENTATION

**Abstract.** The technological innovations help to improve and develop online payments, including digital wallets, P2P payments, and e-commerce payments through the existing e-banking infrastructure. Privacy issues prevent data owners from sharing and exchanging data outside their institutions for fear of fraud and abuse. Open banking can help maximize customer benefits through data sharing and deeper collaboration between financial institutions. All companies providing payment services in the European Economic Area must comply with the PSD2 account access requirements. PSD2 regulates that third-party PSPs have the right to access a payment account held with banks to provide account information services and/or payment initiation services. To do this, banks must provide a secure and open interface for third-party payment systems for account access, reporting, and payment initiation.

In light of the update of the European Commission's Payment Services Directive, which aims to improve competition and boost economic activity by facilitating and encouraging bank account holders to send their account data in a controlled and secure manner, there is a problem with customers' lack of awareness, benefits and security in the implementation of operations on the principles of open banking.

This article is devoted to the study of Open Banking, as a concept, its economic nature, prerequisites, opportunities and risks of implementation as a new way to use payment services, introduced by the Directive. The research contributes to the development of open banking technology and solves the problem raised in the work – customer trust in it, which determines the success of its implementation and development of such a business model.

**Keywords:** open banking, non-cash payments, non-cash circulation, banking system, banking products, banking services

Formulas: 0, fig.: 1, tabl.: 1, bibl.: 47

**JEL Classification:** G23, O33, O38, E42

**Вступ.** Світова економіка змінюється, рухаючись до діджиталізації, завдяки якій компанії виходять на міжнародні ринки, використовуючи різні технології, створюючи нові способи просування, придбання та оплати товарів або послуг. Платіжна галузь зазнає серйозних структурних змін, які створюють нові можливості для різних зацікавлених сторін. Раніше вихід на міжнародний ринок для багатьох компаній був ускладнений, або й взагалі не можливий через багато факторів, таких як: мова, правила входу, законодавство. Проте, зараз при впровадженні відкритого банкінгу, це стане набагато легше, адже створиться один фінансовий ландшафт на всьому континенті.

Відкритий банкінг змінить правила гри в платіжній галузі, оскільки він спрямований на вирівнювання поля для всіх гравців та як каталізатор для нових бізнес-моделей.

В світлі оновлення Директиви Європейської комісії про платіжні послуги (друга версія Директиви, або PSD2, спрямованої на покращення конкуренції та активізації економічної активності шляхом сприяння та заохочення власників банківських рахунків контролювано та безпечно надсилати дані своїх облікових записів, повстала проблема, пов'язана з необізнаністю клієнтів про можливості, переваги й безпеку під час здійснення операцій за принципами відкритого банкінгу.

По суті, PSD2 означає, що будь-який бізнес - скажімо, соціальна мережа або розробник мобільних додатків - може обробляти платежі від імені своїх користувачів. Все, що йому потрібно, - це дозвіл користувача та доступ до API банку, який банк повинен надати [Mansfield-Devine 2016].

**Аналіз досліджень та постановка завдання.** Інноваційний розвиток в напрямку методів онлайн платежів забезпечив безліч нових способів оплати, включаючи цифрові гаманці, платежі P2P (peer-to-peer), тобто «від користувача до користувача» та послуги, що дозволяють здійснювати платежі в електронній комерції через існуючу інфраструктуру електронного банкінгу.

Дослідженням впливу інноваційних технологій на розвиток безготівкових розрахунків в Україні займалися Б. Вишивана, Ю. Дяків, які у своїй роботі проаналізували тенденції розвитку та впливу інноваційних технологій на український платіжний ринок, обґрунтували можливі напрями вирішення проблем, характерних для системи безготівкових розрахунків в Україні, в тому числі з урахуванням світового досвіду [Вишивана, Дяків 2019]. Бондаренко Л. та Ярошевич Н. розглянули сучасний стан безконтактних платежів в Україні та проаналізували готовність фінансового сектору до впровадження інших інноваційних систем безконтактної оплати [Бондаренко, Ярошевич 2019]. Гірняк В.В. та О.В. Мельниченко у своїх працях розглядали заходи банків щодо нових тенденцій розвитку банківських послуг (QR-кодів, NFC-гаманців), проаналізували застосування сучасних інструментів у продажах банками України та запропонували використання інноваційних каналів продажу для підвищення ефективності діяльності банків України [Гірняк 2017; Мельниченко 2013].

Дослідження особливостей сучасного стану електронних банківських послуг в Україні та тенденцій ринку інноваційних фінансових послуг, завдань і напрямів розвитку національного платіжного простору у своїх працях розглядали В. Міщенко та С. Міщенко [Міщенко, Міщенко 2018], Н. Пантелєєва [Пантелєєва 2017], М. Тарасюк, О. Кощеєв [Тарасюк, Кощеєв 2017], Мельниченко О., Гартінгер Р. [Melnychenko, Hartinger 2017; Melnychenko 2020] та інші.

Тенденції розвитку та напрями досліджень новітніх фінансових технологій у банківській галузі розглядав у своїх працях Чайковський Я. [Чайковський 2020]; інноваційні вектори розвитку банківської системи досліджував Дзюблюк О. [Дзюблюк 2019]; дослідженням fintech в системі фінансової інклюзивності займався Луців Б. [Луців 2018].

Дослідженням впровадження інноваційних банківських послуг і новітніх фінансових технологій займалися L. Wang, X. Luo, X. Yang., Z. Qiao [Wang, Luo, Yang, Qiao 2019], R. Wezel wan, C. Damen [Wezel, Damen 2019], H. Zhao, S. Anong, L. Zhang [Zhao, Anong, Zhang 2019], M. Kröner [Kröner 2018], A.A. Pentina, A. S. Mishra, M. S. Mimoun [Bailey, Pentina, Mishra, Mimoun 2020], Almehrej, A. Bailey, L. Freitas, P Modesti [Almehrej, Freitas, Modesti 2020], W. Drozd, J. Marszalek-Kawa, R. Miskiewicz, K. Szczepanska-Waszczyna [Drozd, Marszalek-Kawa, Miskiewicz, Szczepanska-Waszczyna 2020; Miśkiewicz 2019; Miskiewicz 2017], R. Wolniak [Miśkiewicz, Wolniak 2020], H. Dzwigol [Dzwigol 2020a; Dzwigol 2020b], A. Kwilinski, O. Vyshnevskyi [Kwilinski, Vyshnevskyi, Dzwigol 2020; Dzwigol, Dzwigol-Barosz, Miskiewicz, Kwilinski 2020], O. Melnychenko [Мельниченко 2013а; Мельниченко 2013b; Мельниченко 2013c; Мельниченко О. В. 2014], B. Nicoletti [Nicoletti 2017], T. Philippon [Philippon 2017], M. Polasik [Polasik, Huterska, Iftikhar, Mikula 2020], R. K. Sinha, A. Adhikari

[Sinha, Adhikari 2018], R. Steennot [Steennot 2018], P.T.J. Wolters, B.P.F. Jacobs [Wolters, Jacobs 2019], M. Zachariadis, P. Ozcan [Zachariadis, Ozcan 2016] та інші.

Перелічені та інші науковці увагу в своїх працях приділяли різним аспектам розвитку банківського бізнесу, однак не було в їхніх працях порушено й вирішення питання запровадження концепції відкритого банкінгу в тих країнах, де директива PSD2 не має юрисдикції, проте застосування її принципів мало б позитивний вплив на розвиток фінансового та інших галузей економіки.

Проблема порушена в цій роботі полягає в можливостях запровадження відкритого банкінгу в тих країнах, які не входять до Європейського Союзу. У розвиток порушеної теми стосується також України, яка визначила своїм курсом євроінтеграцію і якій варто імplementувати всередині країни найкращі практики ЄС у різних секторах економіки, зокрема, банківському.

Метою статті є дослідження поняття відкритого банкінгу, його економічної сутності, передумов, можливостей та ризиків впровадження, як нового способу використання платіжних послуг, введений директивою PSD2 та його можливостей і ризиків для економічного простору України.

**Результати дослідження.** Технологічні інновації сприяють удосконаленню й розвитку онлайн платежів, включаючи цифрові гаманці, платежі P2P та послуги, що дозволяють здійснювати платежі в електронній комерції через існуючу інфраструктуру електронного банкінгу. Проблеми конфіденційності заважають власникам даних ділитися та обмінюватися даними поза їхніми установами через страх шахрайства та зловживань [Wang, Guo, Lin 2006]. Крім того, питання власності та конфіденційності персональних даних суттєво впливає на відкритий банкінг [Voigt, Von dem Bussche]. Відкритий банкінг може сприяти досягненню максимальних вигод клієнтів завдяки обміну даними та більш глибокій співпраці між фінансовими установами. Усі компанії, що надають платіжні послуги в Європейському економічному просторі, повинні підтримувати вимоги другої версії Директиви про платіжні послуги, або PSD2, щодо доступу до рахунку. PSD2 регулює, що сторонні постачальники платіжних послуг мають право доступу до платіжного рахунку, що знаходиться у банках, для надання послуг з інформації про рахунок та / або послуг з ініціювання платежів. Для цього банки повинні забезпечити безпечний та відкритий інтерфейс для сторонніх платіжних систем для доступу до рахунку, звітування та ініціювання платежів.

Фінансовий та банківський сектор рухається до "відкритого банкінгу", який може сприяти досягненню максимальних вигод клієнтів завдяки обміну даними та більш глибокій співпраці між фінансовими установами [Avital, Hedman, Albinsson 2017]. Оскільки спільні основні фінансові дані пов'язані з інтересами різних зацікавлених сторін, відкритий банкінг стикається з багатьма проблемами та труднощами. З огляду на ці виклики, банки та компанії з фінансових технологій вивчають нові технології для трансформації існуючих систем, продуктів та послуг, щоб відповідати різним вимогам та нормам щодо конфіденційності даних [Kröner 2018].

Відсутність конкуренції у галузі фінансових послуг стала одним з основних факторів, що змусило Європейський Союз запровадити другу редакцію Директиви про платіжні послуги [The European Parliament and the Council of the European Union: Directive (EU) 2015], яка спрямована на покращення конкуренції шляхом сприяння та заохочення власників банківських рахунків надсилати, контрольовано та безпечно, дані своїх облікових записів. Цей підхід, поряд з економічними можливостями, однозначно має

також важливі наслідки для конфіденційності та безпеки, які мають бути ретельно продумані при побудові систем, що дозволяють обмін даними в такому масштабі.

Щоб забезпечити обміну даними клієнтів між різними банками, Великобританія, як і інші європейські країни, запровадила Стандарт відкритих банківських послуг [Open Banking Working Group 2016)]. Регламент охоплює кілька правил, придатних для різних сторонніх постачальників, які прагнуть обслуговувати споживачів, що погоджуються на обмін їхніми даними. Він дозволяє взаємодіяти та спрощує впровадження систем для обміну даними між банками та третіми сторонами [Almehrej, Freitas, Modesti 2020].

Відкритий банкінг трансформує майбутнє грошей і дозволить клієнтам отримувати доступ до нових продуктів і послуг від регульованих сторонніх постачальників, використовуючи інтегровані системи платежів, які включають все, від автентифікації через розрахунки до підтвердження, споживачі відправляють і витрачають гроші в одну мить. А швидкість і обсяг транзакцій стають можливими завдяки посиленому використанню технологій та штучного інтелекту, починаючи від оцінки ризику і закінчуючи заходами проти шахрайства.

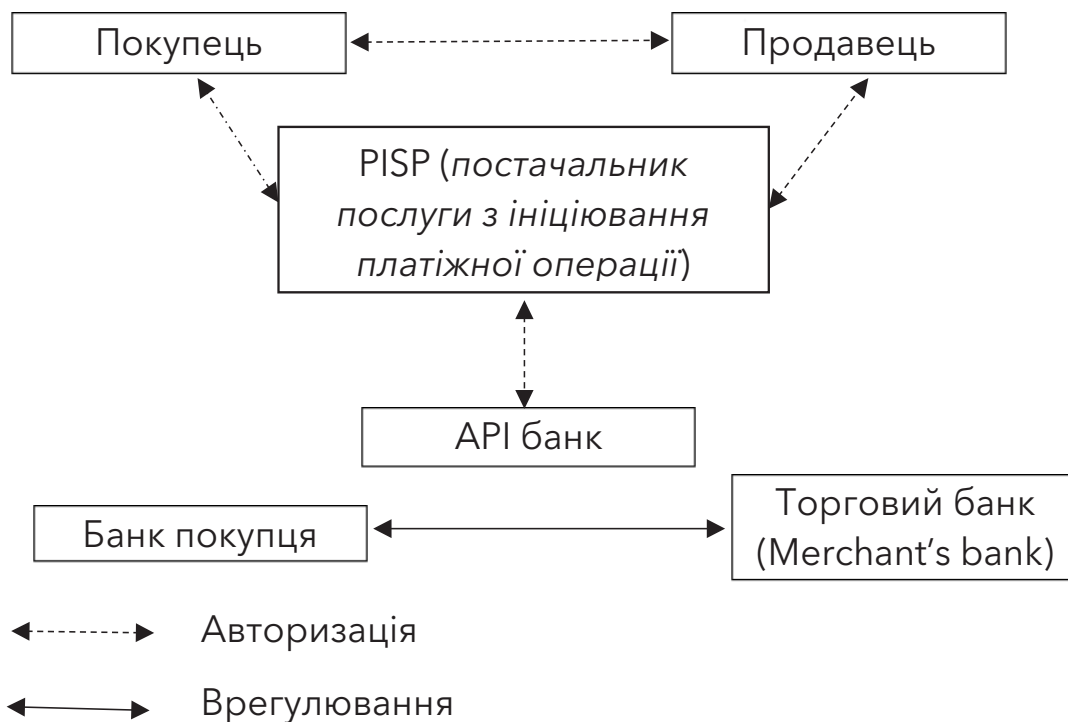
З вересня 2019 року всі компанії, що надають платіжні послуги в Європейському економічному просторі, повинні підтримувати вимоги PSD2 щодо доступу до рахунку. PSD2 регулює, що сторонні PSP мають право доступу до платіжного рахунку, що знаходиться у банках, для надання послуг з інформації про рахунок (AIS) та / або послуг з ініціювання платежів (PIS). Для цього банки повинні забезпечити безпечний та відкритий інтерфейс для сторонніх платіжних систем для доступу до рахунку, звітування та ініціювання платежів. Більшість банків притримуються даної вимоги, пропонуючи відкриті API третім сторонам, які потребують доступу до банківських рахунків для AIS або PIS.

PIS працює як тристороння модель, включаючи покупця, продавця та банк покупця. Для транзакції електронної комерції це виглядає наступним чином (рис. 1):

- Споживач (покупець) відвідує веб-сайт продавця та замовляє товар або послугу. Покупець вибирає відкритий варіант оплати, обирає свій банк і дає згоду постачальнику послуг з ініціювання платежів (PISP) на здійснення платежу.
- PISP (сторонній або власний PSP) тоді повинен підтвердити справжність покупця (платника). Це можна зробити, наприклад, перенаправивши платника на портал банківського онлайн-банку або мобільний додаток.
- Коли аутентифікація проходить успішно, PISP доручає банку здійснити платіж, дебетуючи рахунок покупця та зарахувавши рахунок продавця. Цей платіж може бути здійснений у реальному часі, коли банки покупця та продавця підключені до мережі миттєвих платежів.

Відкриті платежі - це платежі з рахунку на рахунок, які ініціюються PSP безпосередньо з банківського рахунку клієнта (за згодою клієнта) і зараховуються на рахунок продавця. Існує значний інтерес компаній до відкритих платежів (наприклад, до операцій електронної комерції), враховуючи потенційні переваги відкритих платежів. Вони можуть допомогти компаніям оптимізувати час переказу коштів, зменшити ризик шахрайства та зменшити витрати. Банківський ринок повинен враховувати кілька факторів при прийнятті відкритих платежів та їх розвитку, а саме: API banking не стандартизований та технічно не повністю готовий для впровадження; користувацький досвід відкритих платежів повинен покращитися, щоб досягти масштабного прийняття. Наприклад, переспрямування на браузер для клієнтської

SCA слід поступово скасувати і замінити автентифікацією клієнта в мобільному додатку (із переспрямуванням із програми на додаток [MPE, 2020]. Очікується, що в разі успішного запуску пілотного проекту, відкриті платежі набудуть свого масштабного розвитку впродовж п'яти років.



**Рисунок 1** – Трохстороння модель електронної комерції через PISP  
**Джерело:** Aite Group

Відносно України, то як повідомив директор департаменту платіжних систем та інноваційного розвитку НБУ Олександр Яблунівський. «У новому національному законодавстві будуть реалізовані норми європейської директиви PSD2, зокрема концепція Open Banking, для посилення конкуренції, захисту прав користувачів платіжних послуг і стрімкого впровадження нових технологій» [Український платіжний ринок переведуть на Open Banking 2019].

Основними передумовами впровадження відкритого банкінгу в Україні є:

- платіжний рахунок має бути доступним on-line;
- інформація має передаватися захищеним каналом зв'язку;
- постачальник платіжних послуг з обслуговування рахунків має забезпечити або 1) виділений інтерфейс взаємодії стороннього постачальника, або 2) надати доступ до загального клієнтського інтерфейсу;
- при автентифікації мають використовуватись персональні облікові дані клієнта, надані постачальником платіжних послуг;
- має застосовуватись надійна автентифікація клієнта;
- повинен застосовуватись онлайн-ідентифікація сторонніх постачальників з боку постачальника платіжних послуг з обслуговування рахунків через реєстр платіжної інфраструктури НБУ;
- сторонній постачальник має виконувати тільки відповідний запит клієнта, не модифікує параметри платіжної операції, не зберігає та не використовує конфі-



денційні платіжні дані, не має доступу до клієнтських коштів;

- сторонній постачальник не зобов'язаний мати довірливих відносин з постачальником платіжних послуг з обслуговування рахунків;
- відносини стороннього постачальника з клієнтом мають регулюватись платіжним контрактом між ними [Національний банк України 2019].

«Чіткі вказівки регуляторів з питань відкритого банкінгу, можливо, стануть одним із найважливіших параметрів для вимірювання прогресу будь-якої країни щодо готовності до відкритого банкінгу. Ці настанови повинні мати пріоритет у захисті даних клієнтів, надаючи банкам впевненості у відкритті їх даних та надані їх стороннім гравцям» [Allan 2019]. Основні можливості та ризики при відкритому банкінгу представлено у таблиці 1.

**Таблиця 1** - Можливості та ризики з Open Banking

	Можливості	Ризики
1	Покращення продаж та взаємовідносин із клієнтами за рахунок більш широкого доступу до даних від інших установ	Більша вартість та складність експлуатації
2	Нові пропозиції послуг (наприклад, послуги з агрегування рахунків)	Втрата монополії на залучення клієнтів
3	Швидше прийняття рішень щодо кредитування через доступ до даних кількох сторін	Комодитизація роздрібних банківських послуг
4	Більше альтернативних варіантів оплати (наприклад, розстрочка, розумніший POS-кредит)	Відмова від посередництва банків з платежами та потоками даних новими постачальниками платіжних послуг
5	Краща персоналізація завдяки вдосконаленій аналітиці	Посилення конкуренції з боку держав (наприклад, банки, які ефективніше використовують POS-кредит або націлювання на клієнтів)
6	Більше можливостей перехресного продажу для збільшення додаткового доходу	

**Джерело:** складено автором

**Висновки.** Банківський ринок України повинен чим швидше адаптувати платіжні інструменти під європейські стандарти для посилення комунікацій з учасниками ринку і створення платформи для обговорення та реалізації новітніх Фінтех-рішень в платіжному просторі України. Проблеми конфіденційності заважають власникам даних ділитися та обмінюватися ними поза їхніми установами через страх шахрайства та зловживань. Відкритий банкінг може сприяти досягненню максимальних вигод клієнтів завдяки обміну даними та більш глибокій співпраці між фінансовими установами. Усі компанії, що надають платіжні послуги в Європейському економічному просторі, повинні підтримувати вимоги другої версії Директиви про платіжні послуги, або PSD2, щодо доступу до рахунку. PSD2 регулює, що сторонні постачальники платіжних послуг мають право доступу до платіжного рахунку, що знаходиться у банках, для надання послуг з інформації про рахунок та / або послуг з

ініціювання платежів. Для цього банки повинні забезпечити безпечний та відкритий інтерфейс для сторонніх платіжних систем для доступу до рахунку, звітування та ініціювання платежів.

В світлі оновлення Директиви Європейської комісії про платіжні послуги, спрямованої на покращення конкуренції та активізації економічної активності шляхом сприяння та заохочення власників банківських рахунків контролювано та безпечно надсилати дані своїх облікових записів, повстала проблема, пов'язана з необізнаністю клієнтів про можливості, переваги й безпеку під час здійснення операцій за принципами відкритого банкінгу.

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Received: 01.10.2020

Accepted: 09.07.2020

Published: 31.10.2020

DOI: <https://doi.org/10.32070/ec.v4i48.100>

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## **CURRENT TRENDS IN THE IMPLEMENTATION OF THE EUROPEAN MODEL OF ENSURING THE QUALITY OF LIVESTOCK PRODUCTS IN UKRAINE**

**Abstract.** The most important task of the modern agrarian policy for the development of the meat products sub-complex is to maintain and increase the level of meat production, stimulate the expansion of its range and degree of processing, as well as to improve the quality. The country's transition to market relations necessitates further improvement of the economic mechanism of management in the meat products sub-complex, their reorientation to stimulate the production of competitive products, considering consumer demand.

The article aims to reveal modern approaches to guaranteeing the quality and safety of livestock products in the EU and substantiate the possibilities of their application in Ukraine.

This work reveals modern approaches to guarantee the quality and safety of animal products in the EU and justify their possible use in Ukraine. The key elements of the new food safety concept in the EU, rooted in the early 2000s are discovered. The specific legislation governing food safeties in the EU is shoved up. The features of the system of quality certification and livestock products produced with food are discovered. Directions for the formation of an effective system for ensuring the quality and safety of organic livestock products are proposed. The experience of product quality management in the meat sub-complex of the EU countries is revealed. The trends of the European system of compulsory labelling of animal welfare in the manufacture of certain types of livestock production and distribution systems of the voluntary certification program for the protection of animals are revealed. The problems in quality due to the intensification of livestock are noted. The trends and modern approaches to improving knowledge about the impact of a number of substances and ingredients contained in animal products, on human health are analysed.

**Keywords:** livestock products, quality, safety, falsification, certification programs, organic farming, quality assurance logo, intensification

Formulas: 0, fig.: 2, tabl.: 4, bibl.: 23

**JEL Classification:** Q16, Q18, Q57

**Introduction.** In recent decades, the problem of guaranteeing the quality of livestock products, and especially their safety, has become extremely acute in Ukraine. According to numerous studies, about 60% of dairy products in the country are counterfeit. If earlier butter and condensed milk were falsified, now these processes have also spread to cheese and whole milk products. After receiving quotas for the export of dairy products to the EU, it turned out that no brand of products meets European quality standards and can not be sold on the European market. Antibiotics were detected in almost 50% of products, and large quantities [SAFOSO, 2016].

There is an uncontrolled filling of the domestic market with low-quality products with the 'smell of milk and meat', the content of palm oil, stabilizers, enzymes, antibiotics, veterinary drugs, etc. [Pabat, Vinnichuk, 2013]. Residues of heavy metals, toxic substances, radionuclides in feed and, accordingly, livestock products cause hepatotoxic, mutagenic and carcinogenic effects, immunodeficiencies and allergies, nervous system disorders, cancer, acute and chronic toxicosis and more.

**Literature review and the problem statement.** The problem of guaranteeing the quality and safety of livestock products in their works paid considerable attention such scientists as D. Wagner, E. Webb, W. Wismans, J. Dyerberg, R. De Catherine, M. Di Nardi, J. Zhalilo, O. Kovaleva, I. Kravchenko, Y. Oglashenny, T. Ostashko, V. Pabat, G. Rupp, J. Ferreira, J. Higgs and others.

Scientists emphasize a possibility of the production intensification negative impact on the product quality [Czyżewski, Matuszczak, Miśkiewicz 2019; Dzwigol 2019; Dzwigol 2020; Dźwigoł, Shcherbak, Semikina, Vinichenko, Vasiuta 2019] also of animal origin and the sustainability of production systems [Rodríguez-Ortega, Bernués, Olaizola, Brown 2017 for exemple regarding production impacts on GHG emissions [Bais-Moleman,



Schulp, Verburg 2019; Gerssen-Gondelach, Lauwerijssen, Havlík, Herrero, Valin, Faaij, Wicke 2017]. Attempts have been made to analyse the impact of certain qualitative characteristics of meat and milk (cholesterol, various types of fatty acids, antibiotics) on human health and to predict the vectors of development of quality assurance and control systems in animal husbandry, including in the direction of expanding the possibilities of genetic modification [Hocquette, Richardson, Prache 2005; Nardone, Valfrè 1999], milk somatic cell count and risks to the consumers' health [Moradi, Omer, Razavi, Valipour, Guimarães 2021].

Modern research emphasizes the need to optimize the ratio of polyunsaturated fatty acids contained in red meat in favour of omega-3 ( $\omega$ -3) using the latest genetic technologies [Delgado, Ansorena, Van Hecke, Astiasarán, De Smet, Estévez 2021; De Caterina 2011; Meisel 1997; Wyness 2016]. It is noted that restrictions on fat and cholesterol intake are becoming an important measure to prevent obesity and atherosclerotic risks [Enser, Richardson, Wood 2000; Cizzolini, Zanardi, Dorigoni 1999; Gullón, Astray, Gullón, Franco, Campagnol, MLorenzo 2021; Yuan, Zhang, Hua, Liu, Liu, Yuan, Li, Zhu, Zhang 2020]. According to research by J. Higgs [Higgs 2000], the level of cholesterol in human blood increases due to the fat content in beef and pork. The recent survey has shown that the interest in fish meat consumption is relatively low, whereas pork is more highly preferred [Samková, Hasoňová, Kadlec, Smetana, Kala 2019]. At the same time, meat containing  $\omega$ -3 polyunsaturated fatty acids can lower cholesterol and, consequently, thrombotic tendencies [Solomando, Antequera, Perez-Palacios 2020]. Different breeds of animals have been found to have different subcutaneous and intramuscular fat levels [Lonergan, Topel, Marple 2019].

The most striking evidence of genetic modification of cattle is the breeding of breeds with the gene 'double muscles' [Teixeira, Oliveira, Chizzotti, Chalfun-Junior, Coelho, Gionbelli, Paiva, Carvalho, Ladeira 2017]. The fat content of carcasses with double muscles is very low compared to 'normal' carcasses (about 50% of adipose tissue and a third of intramuscular fat) [Webb, De Smet, Van Nevel 1998]. This type of meat is becoming very attractive to consumers who want to limit their daily consumption of meat fat. Recent molecular genetics results are also very promising for improving the quality of pork and poultry meat [Enser, Richardson, Wood 2000]. In addition, some studies have shown that an increase in the content of conjugated linoleic acid (CLA) in milk prevents a number of cancers and cardiovascular diseases in humans, stimulates the immune system, prevents the development of diabetes [Boland, MacGibbon, Hill 2001; Chen, Park 2019; Siurana, Calsamiglia 2016].

The authors rely on various components of the new concept of safety of animal products developed by scientists, according to which the concept of safety applies not only to the final product, but also extends to the entire production and marketing chain, in particular to agricultural raw materials [Costa, Vaz, Mendonça, Restle, Kroning, Ferreira, Farias 2020; Dai, Liu 2020; Despoudi 2020; German, Bonanno, Foster, Cotula 2020; Noordhuizen, Metz 2005; Xiang, Xu 2020]. As a basic example of the development of organizational and economic mechanism to improve the quality and safety of livestock products in Ukraine, the model adopted in the EU, which developed a number of basic documents covering all types of food and all processes related to their production and circulation.

Given the exacerbation of the problem of quality and safety of livestock products, there is a need to deepen research to substantiate and apply in Ukraine modern approaches to

ensuring its quality and safety, which are used in the EU and prove their effectiveness. In addition, the high demands of EU legislation and the demands of European consumers are becoming a significant barrier to the export of domestic livestock products - products with a significant share of value added.

The aim of the article is to reveal modern approaches to guaranteeing the quality and safety of livestock products in the EU and substantiate the possibilities of their application in Ukraine.

**Research results.** In recent decades, the problem of guaranteeing the quality of livestock products, and especially their safety, has become extremely acute in Ukraine [Miskiewicz 2017; Vatamanyuk-Zelinska, Melnychenko 2020]. According to numerous studies, in the country, there is an 'uncontrolled filling of the market with counterfeit products with the 'smell of milk and meat', palm oil, various stabilizers, enzymes, antibiotics, veterinary drugs, etc.' [Pabat, Vinnichuk 2013]. Residues of heavy metals, toxic substances, radionuclides in feed and, consequently, carcinogenic effects in livestock products, immunodeficiencies and allergies, nervous system disorders, cancer, acute and chronic toxicosis caused by direct and cumulative effects of toxicants.

Therefore, there is a need to use modern approaches to guarantee the quality and safety of livestock products used in the EU, as they have proven their effectiveness. In addition, the high demands of EU legislation and the demands of European consumers are becoming a significant barrier to export of domestic livestock products, products with a significant share of value added. That is, the main barriers to trade livestock products with the EU are not import tariffs, but technical barriers [Miśkiewicz 2019; Shkodina, Melnychenko, Babenko 2020]. The problem of improving the quality of livestock products has become more relevant in the context of the formation of a free trade zone between Ukraine and the EU.

In general, the mechanisms for eliminating technical barriers to trade between countries are based on mutual recognition of the results of conformity assessment, and the condition for such recognition is the technical harmonization of standards [Bochulia, Melnychenko 2019]. Such harmonization is achieved in the presence of a modern system of technical regulation in the country, which would comply with generally accepted international norms and rules of international organizations (including ISO). The main components of the technical regulation system are standardization, metrology, conformity assessment, accreditation of conformity assessment bodies and testing laboratories [Semenov, Kozhushko, Shurduk 2011].

The EU technical regulation system is considered to be one of the most successful mechanisms for removing technical barriers to mutual trade. The effectiveness of the European approach in the field of technical regulation confirms the existence of agreements on mutual recognition of the results of conformity assessment with the United States, Canada, Australia, Japan, Switzerland, Israel and other countries. The European model is based on the principles of the 'New approach' to technical harmonization and standardization (adopted by the Council of Europe on 07/05/1985) and the 'Global Approach' on conformity assessment (adopted by the Council of Europe on 21/12/1989). According to these principles, 'the basic requirements for the safety and quality of livestock products are contained in technical regulations, which are obligatory. Control over compliance with the requirements of technical regulations is carried out through market control, rather than one of production processes' [Technical regulation in the EU].

In the EU, there are three main types of legislation, governing economic relations in the field of quality assurance and safety of livestock products: regulations, directives and acts. The Regulation is a law of direct effect, the rules of which EU member states are obliged to comply with. From the moment of entry into force of the regulations, the norms of national law, which come into conflict with the provisions of the regulations, cease to apply (without official repeal). The directive, in contrast to the regulation, contains general concepts and objectives in the field of quality assurance and safety, and it is up to each state to decide how to apply them. The directive 'is binding on each state member to which it is addressed as to the expected outcome, but preserves for the national authorities the freedom to choose the forms and methods of action' [Musis 2005]. The third type of basic EU legislation is an Act. They are binding on those to whom they are addressed and apply to specific states or individuals or legal entities. As the analysis of documents in the field of food quality and safety shows, since 2000 the EU has been gradually moving away from the practice of applying directives (in favor of regulations).

Until early 2000s, regulations in the EU (directives, regulations) that defined the processes of guaranteeing the quality and safety of livestock products were vertically or product-oriented. They, like domestic legislation, contained a detailed description of quality standards and indicators for certain types of livestock products, but did not provide for feed control and analysis of hazardous factors. As a result, 'many problems with ensuring the safety of livestock products (cattle spongiform encephalopathy, the presence of growth stimulants in pork, dioxin in eggs and poultry, antibiotics in honey, etc.), which led to the despair of European consumers in its proper quality' [Nardone 2004].

As a reaction to a number of scandals concerning the low quality of food of animal origin, as well as to change in the attitude of consumers, a new concept of animal hygiene was justified in the EU. According to it, the concept of hygiene applies not only to the final product (meat, milk, eggs, honey), but also applies to the entire production chain, including primary feed production. As a result, the EU is now dominated by a horizontal approach to product quality and safety: a number of key documents have been developed covering all types of food and all processes related to their production and circulation.

The main piece of legislation governing food safety in the EU is Regulation (EC) №178/2002 'On the establishment of the basic principles and requirements of food law, the foundation of food safety agency and establishment of appropriate procedures related to food safety'. It is also called the basic food law of the EU. The regulation contains the following provisions:

- the food chain is considered as a whole on the principle of 'from the field to the table';
- a prerequisite for a successful policy to improve the quality of PAO is the traceability of feeds and components of these foods at all processes and links in the food chain. The principle of traceability means that in the event of a threat to the health of consumers, it becomes possible to withdraw from circulation relevant feeds and products;
- primary responsibility for the safety of PAO is borne by feed manufacturers, farmers and food industry enterprises;
- the consumer has the right to receive accurate and reliable information about the food product. He is responsible for the proper storage, preparation and use of PAO;

- an important component of the security policy of the PAO is risk analysis. This is the basis on which food safety policy is generally based;
- when approving decisions in the framework of risk management, as a rule, preventive methods are used [Butylo, Dobidovska 2012].

The European Food Safety Authority (EFSA) was established under this regulation. The scope of the agency covers a wide range of issues related to food safety, public health and food safety, animal and plant health and protection (feed sources). The Agency also assesses the possible impact of the feed and food chain on the biodiversity of the animal environment, the environmental risks of the use of genetically modified organisms. In general, EFSA is the main source of scientific advice for effective risk management decisions throughout the food chain by the European Commission, the European Parliament and EU Member States.

In addition, in 2004 the EU approved the so-called 'hygiene package', i.e. legislation on the safety of livestock products. Special requirements for the production, processing and circulation of livestock products set by a number of EU regulations. The main provisions and scope of these regulations illustrated in Table. 1.

**Table 1** - EU regulations on safety of livestock products and their main characteristics

Regulations	Scope of implementation
N <sup>o</sup> 852/2004 'On general rules of food hygiene'	Established general rules of food hygiene for all stages of its production, processing and sale, such as: the need to ensure the safety of food of animal origin at all stages of the food chain, starting from the stage of production of raw materials; responsibility for food safety on the part of manufacturers; for food products of animal origin that cannot be safely stored at ambient temperature (especially for chilled and frozen products), the obligation to store at the same temperature at all stages of the food chain; general procedure for the application of procedures based on HACCP principles, together with the application of responsible sanitary and hygienic practices
N <sup>o</sup> 853/2004 'On special rules for the hygiene of food of animal origin'	Established for entrepreneurs (producers, slaughterhouses, food companies) special rules applicable to food products of animal origin, which often revealed microbiological and chemical risks. These rules supplement the rules laid down in Regulation (EC) No 852/2004. They shall apply to processed or unprocessed products of animal origin: 1) all products of animal origin must have either a marking or an identification sign; 2) owners of slaughterhouses should take animals to the slaughterhouse only if they have invited and received full information on food safety (including the composition of feed, water, veterinary medicinal products or other substances provided to animals during the appropriate period). dates of their provision and periods of detention); 3) strict requirements are established for the hygiene of premises, hygiene of slaughter of animals, hygiene of milking, collection and transportation of milk;

ALINA PROSHCHALYKINA, VOLODYMYR HUNIA

№ 853/2004 'On special rules for the hygiene of food of animal origin'	ed 100 thousand cells/ml, the number of somatic cells - 400 thousand/ml (corresponds to the domestic grade of extra)
№854 / 2004 'On departmental control of certain products of animal origin intended for human consumption'	Established special rules for the organization of official control over products of animal origin. The provisions of this Regulation apply in addition to Regulation 882/2004. The regulations contain separate articles: permission to carry out the activities of enterprises; general principles of official control over all products of animal origin falling within the scope of the regulation; fresh meat; live mollusks; fish products; raw milk and dairy products. This Regulation also contains procedures relating to imports
№882 / 2004 'On official control measures applied to ensure confirmation of compliance'	Establish general rules for the conduct of official control measures to confirm compliance with rules aimed, in particular, at preventing, eliminating or reducing risks to humans and animals to acceptable levels directly or through the environment; guaranteeing fair practice in trade in feed and food products and protection of consumer interests, including labeling of feed and food products and other forms of information for consumers
№2073 / 2005 'On microbiological criteria applicable to foodstuffs'	Established the microbiological criteria applicable to certain micro-organisms and the rules to be followed by food market participants when carrying out the general and specific hygiene measures referred to in Article 4 of Regulation (EC) No 852/2004. Competent authorities shall monitor compliance with the rules and criteria in accordance with Regulation (EC) 882/2004 by taking samples and analyzes to detect and measure the content of micro-organisms, their toxins or metabolites, and to examine foodstuffs suspected of presenting a danger.

**Source:** compiled by author based on: [Butylo, Dobidovska 2012; Tavlui 2014].

The characteristic of all these regulations are the following key components: first, the principle of risk analysis, hazards and critical control points (HACCP), which allows to ensure the production of safe high-quality livestock products by identifying, analyzing and controlling hazards; secondly, it is strictly regulated sanitary and hygienic conditions, which are necessary for effective control of dangerous factors and ensuring the suitability of PAO for human consumption, provided they used for intended purpose; thirdly, the professional competence of management and employees, which allows to successfully solve the problem of improving product quality and, consequently, its competitiveness.

In the EU, the rules on microbiological criteria for livestock products (EU Regulation №2073/2005) complement and based on detailed animal health standards (EU Directive № 99/2002 'On Animal Health'). The relevant EU regulations №1829/2003 (products and feeds) and №1830/2003 (traceability and labeling) regulate the production and circulation of genetically modified food and feed.

EU directives and regulations approved in 2005-2006 contain a wide range of requirements related to feed hygiene (Regulation №183/2005 'On feed hygiene'), as well as labeling and comprehensive consumer information on product properties. In

particular, labels on PAO should contain a complete list of ingredients, as well as indicate presence of potential allergens. A list of ingredients and substances prohibited for use in the processing and processing of livestock products (Directive (EU) N°26/2005). The maximum permitted level of residue of veterinary products and hormones in PAO has also been determined, rules for classifying products as organic and using regional names of food products have been introduced.

Thus, the EU has approved detailed norms and standards for products (prohibited substances), for the process (HACCP, traceability on the principle of 'step back, step forward'), for consumer information (labeling), as well as for procedures (official control).

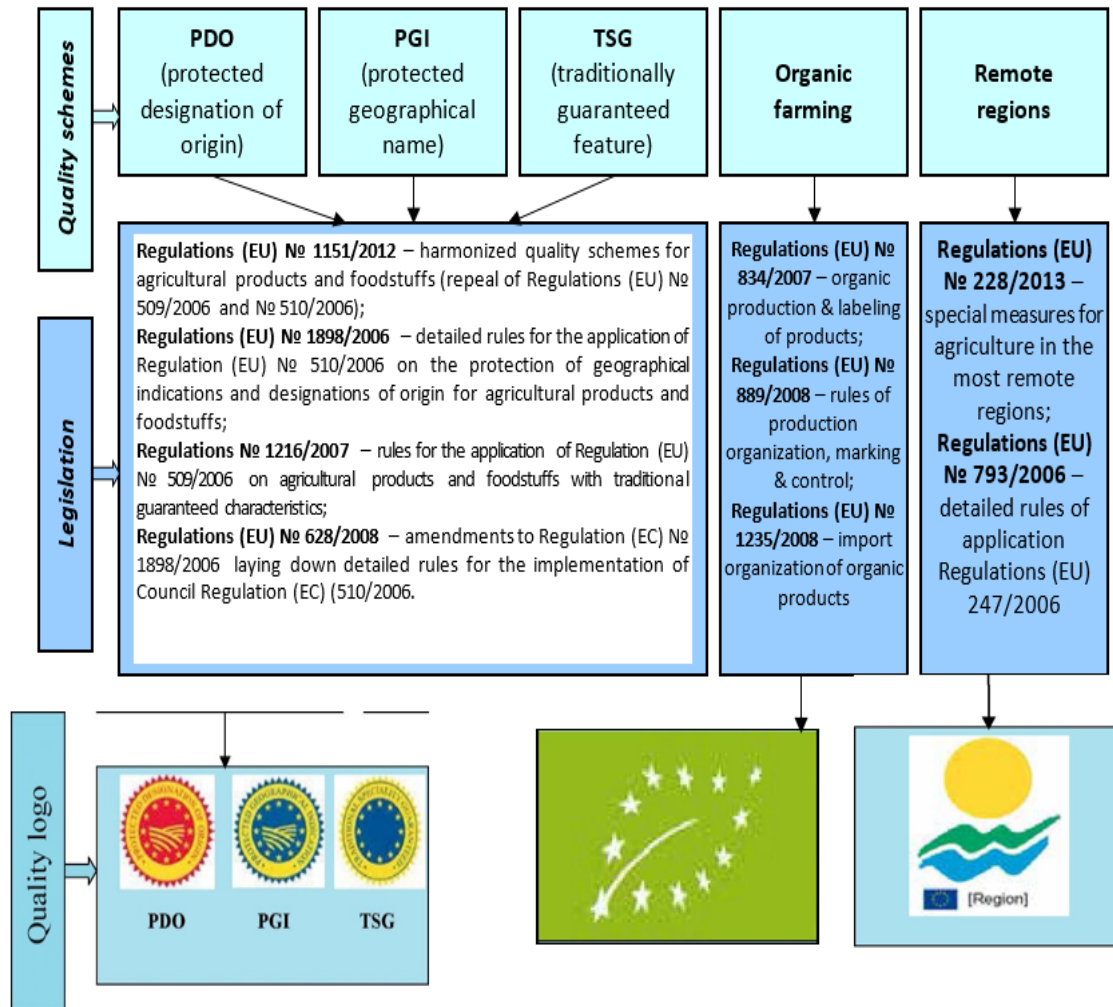
Increased liability of all participants in the food chain for the quality and safety of livestock products has led to an intensification of their efforts to voluntarily assess compliance. In the EU, as of 2010, there were 441 systems for assessing the conformity of agricultural products and food. In order to harmonize these systems and limit their complex pressure to increase the costs of producers, who are often forced to evaluate their products under several schemes, Regulation (EC) N° 1151/2012 'On conformity assessment schemes for agricultural products and food products' was adopted and entered into force in 2013. Although this regulation is broadly in line with existing quality assurance schemes, it amended the requirements of previous EU regulations N° 509/2006 and 510/2006). They concern the introduction of a simplified certification regime for certain quality schemes (including a simplified procedure for the registration of protected designations of origin (PDOs) and geographical indications (PGI)); mandatory use of logos of origin for products made in EU countries; the need to enter the geographical names of third countries in the EU register on the basis of mutual agreements' [ Onosova I. and Shevchuk 2013].

The use of schemes to ensure and confirm the quality of livestock products is based on legislation that contains requirements for its registration, circulation, certification and labeling (using logos of high quality confirmation) (Fig. 1). All applications for registration of logos confirming the high quality of products (PDO, PGI, TSG) are entered into the database of the European Commission.

In Ukraine, only certain parts of the national system of technical regulation are being formed, which ensure the implementation of a horizontal or process approach (instead of product-oriented) to improve the quality and safety of livestock products. Over the last 5 years, efforts have been intensified to bring the national technical regulation system closer to EU and WTO requirements.

According to the current Agenda of the EU-Ukraine Association, within the program to promote mutual trade by removing technical barriers in trading between Ukraine and the EU, the transition from mandatory certification to conformity assessment is carried out, gradual adoption of technical regulations New Approach 'EU, revision and replacement of old standards (State Standard (former edition), State Standard (current edition)) with ISO and European standards, the creation of a market control system [Technical regulation in the EU]. In particular, new (or in a new edition) laws of Ukraine 'On metrology and metrological activity' dated 05/06/2014 N° 1314 were adopted; 'On standardization' on 05/06/2014 N° 1315; 'On technical regulations and conformity assessment' dated 15/01/2015 N° 124; 'On accreditation of conformity assessment authorities' (as amended on 11/02/2015); 'On consumer protection' (as amended on 01/01/2016); approved as the national basic standards of the ISO series 9000 and 14000. The strategy for the

development of the technical regulation system for the period up to 2020 was approved (by the order of the Cabinet of Ministers of 19/08/2015 № 844-p).



**Figure 1** - Schemes of quality of livestock products and their food products  
**Source:** compiled by the author based on [Vysotska 2014; Katsarova 2013; Kyryliuk, Kyryliuk 2017]

Thus, the main attention paid to the application of the European principles of the 'New Approach' and the 'Global Approach', which are implemented in Ukraine as technical regulations. In Ukraine, a technical regulation is a legislative act or normative legal act adopted by the Cabinet of Ministers of Ukraine (CMU), which may directly contain mandatory technical requirements or define them by reference to standards or by applying interrelated standards. During 2005-2017, more than 40 technical regulations were adopted.

The principles of the 'Global Approach' implemented in Ukraine by the technical regulation 'Conformity assessment modules and requirements for national conformity marking'. For the effective implementation of its provisions, the Cabinet of Ministers adopted the Resolution 'On approval of conformity assessment modules used for the development of conformity assessment procedures and rules for the use of conformity assessment modules' № 95 of 13/01/2016.

On 13/09/2018, the Cabinet of Ministers approved the draft Law of Ukraine 'On Amendments to Certain Legislative Acts of Ukraine in Connection with the Adoption of the Law of Ukraine' on Standardization' (dated 19/09/2017 № 7123), which brings all bylaws in line with the above Law of Ukraine 'On Standardization'. The provisions of this draft law establish the voluntary application of national standards (as required by European principles of standardization), respectively, eliminate the need for coordination of draft national standards, technical conditions (TC) of enterprises with government agencies, abolished industry standardization. The current product or industry-oriented approach to product quality assurance and the resulting control system based on testing only finished products were 'reactive, inefficient and did not meet existing international trends. They created major problems with monitoring compliance with quality requirements throughout the production and circulation chain' [Kyryliuk, Kyryliuk 2018].

These measures contributed to the harmonization of the main criteria of the domestic system of technical regulation with the European one and generally corresponded to the content of the agreement on the elimination or minimization of technical barriers to trade. At the same time, the European practice of implementing the principle of traceability of products at all stages of its production and circulation requires significant improvements in the system of guaranteeing product safety (especially livestock products). This necessitates the formation of an effective system of sanitary measures in the production and exchange of livestock products and feed, as provided by the Association Agreement 'Ukraine - EU' (Chapter 4 of Section IV), which entered into force on 01/09/2017. According to the agreement, to ensure the protection of human, animal and plant life and health, Ukraine must present and implement a comprehensive strategy to harmonize its legislation on sanitary and phytosanitary measures with EU legislation by priority sectors (according to Annex V to Chapter 4).

Act #228 adopted on 24/02/2016 'On Approval of the Implementation Strategy of Chapter IV (Sanitary and Phytosanitary Measures) of the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other side'. The strategy envisages the implementation in Ukraine in 2016 of measures to regulate the general principles and requirements of legislation on safety of livestock and feed products (by analogy with Regulation (EU) № 178/2002), requirements for the hygiene of livestock products (Regulation (EU) № 852/2004); in 2018 - requirements for traceability of food products of animal origin (Commission Implementing Regulation (EU) №931/2011).

However, the process of implementation of European and international standards of safety and quality of livestock products in the field of agricultural production is slow in Ukraine. Out of 297 standards of the Alimentarius Code in Ukraine, only 30 standards are harmonized and are being approved. Only 2 standards (7%) of the total number of State Standards that are in force in Ukraine in the field of animal husbandry and animal breeding (72 standards) as of 01/01/2017, were harmonized with international and European norms. This is one of the worst indicators in the agro-industrial complex (Table 2).



**Table 2** - Standards for agricultural products and their level of harmonization with international and European ones

Industry, products	Number of current and old State Standards for poultry meat	Harmonized	The level of harmonization on average, %
Livestock and animal breeding	72	2	2,8
Agricultural buildings and livestock farms	17	4	23,5
Animal feed	218	39	17,9
Apiculture	22	0	0,0
Hunting	4	0	0,0

**Source:** [Kovalchuk S., 2016; Ministry of Agrarian Policy and Food of Ukraine].

Although, in Ukraine, since 01/01/2019, 90% old edition standards were abolished and readopted to new edition Ukrainian Standards EN, the livestock industry was practically not affected by such changes. First, a number of Standards for poultry meat remain in force until 01/01/2022, and secondly, most of the Standards in the field of animal husbandry remain not harmonized with international and European standards. This applies to State Standard 4426:2005 'Beef in cuts. Technical conditions', State Standard 7158:2010 'Meat. Pork in carcasses and half-carcasses', State Standard 4508:2005 'Compound feeds-concentrates for pigs. Technical conditions', State Standard 4673:2006 'Cattle for slaughter. Technical conditions' and other standards.

This situation is objectively determined. Consequently, after the introduction of European and international standards, it is difficult to ensure compliance with the main producer of livestock products - households. Therefore, for Ukraine, in our opinion, 2 real options available:

1) quickly (instantly) introduce European and international standards, in particular ISO standards (in particular ISO 22002-3), the Codex Alimentarius Commission, which will lead to a de facto prohibition on the sale of the vast majority of livestock products obtained on the basis of households. As a result, we may get a supply shock and a sharp rise in prices;

2) gradually introduce international standards simultaneously with the change in the structure of product supply in favor of agricultural enterprises, farms, cooperatives, on the basis of which, it is possible to ensure compliance with international quality standards.

Today, in Ukraine, it is expedient to implement the second option - the introduction of international and European standards of quality for livestock products. At the present stage, the emphasis is on the quality of food of animal origin. The basis for the implementation of measures to regulate the general principles and requirements of legislation on safety of livestock and feed products was the Law of Ukraine 'On Basic Principles and Requirements for Safety and Quality of Food Products' (as amended by Law № 1602 of 22.07.2014) [On the basic principles and requirements for food safety and quality: Law of Ukraine, 2014].

Although even earlier the Act of the Ministry of Agrarian Policy 'On approval of the Requirements for the development, implementation and application of permanent

procedures based on the principles of HACCP' dated 01/10/2012 № 590 [On approval of the Requirements for the development, implementation and application of permanent procedures based on the principles of the Food Safety Management System (HACCP), 2012] was adopted.

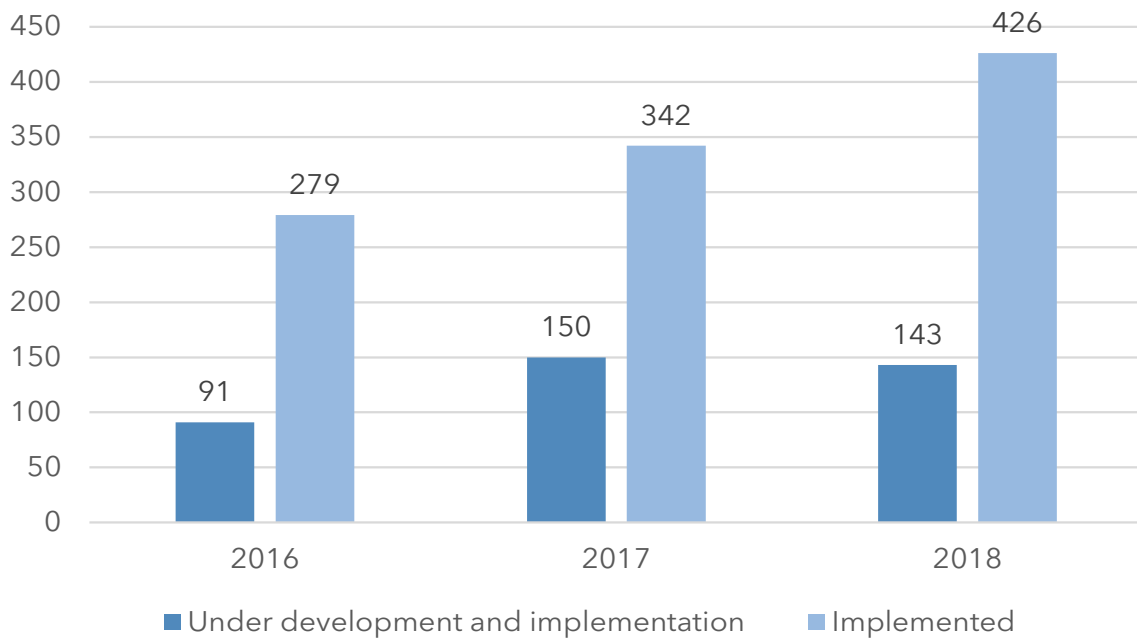
The Law of Ukraine 'On Basic Principles and Requirements for Food Safety and Quality' conceptually defines the procedure for guaranteeing in Ukraine the safety and certain indicators of the quality of livestock products produced or in circulation. This procedure is in line with European principles of guaranteeing safety and quality. It provides for mandatory accreditation in accordance with the standard DSTU ISO / IEC 17025:2006 'General requirements for the competence of testing and calibration laboratories' of all laboratories that perform product testing, as well as the creation of a network of reference laboratories.

Mandatory hygienic requirements have been approved 'for facilities for the production or circulation of livestock products, for premises where foodstuffs of animal origin are processed or reprocessed, for vehicles, equipment and inventory, hygienic requirements for water supply, food waste management, hygiene requirements for personnel working in the area of handling livestock products, hygienic requirements for food products of animal origin, including their packaging, including primary packaging, heat treatment, etc.' [On the basic principles and requirements for food safety and quality: Law of Ukraine, 2014].

One of the key ones was the regulation of the introduction of the European principle of traceability and risk analysis in the entire chain of production and circulation of livestock products, as well as the use of hazard analysis and control at critical points (HACCP) by the entities of this chain. The final and transitional provisions of the Law of Ukraine 'On Basic Principles and Requirements for Food Safety and Quality' [On the basic principles and requirements for food safety and quality: Law of Ukraine, 2014] for facilities operating with food products containing unprocessed ingredients of animal origin (except for small facilities) provided on September 20, 2017 to put into effect and apply procedures based on the principles of HACCP. For small businesses that sell products to end users (staff of up to 10 people, area - up to 400 sq.m), as well as facilities that do not sell products and have staff up to 5 people, the deadline is September 20, 2019.

According to the Ministry of Agrarian Policy, as of 01/01/2018, the HACCP system was implemented by 426 domestic enterprises that ensure the production and circulation of food products that contain unprocessed ingredients of animal origin. Another 143 enterprises carry out its development and implementation [State Service of Ukraine for Food Safety and Consumer Protection (official website)].

Compared to the same period in 2017, the number of enterprises that have implemented the HACCP system increased up to 25%, and the number of enterprises that are still developing and implementing, decreased by 5% (Fig. 2). The leaders in the number of enterprises that have implemented or are still developing the HACCP system were Dnipropetrovsk, Volyn, Vinnytsia and Kharkiv regions, in which 60, 49, 48 and 45 such enterprises operated, respectively.



**Figure 2** - Schemes of quality of livestock products and their food products  
**Source:** Ministry of Agrarian Policy

In addition, the following tendencies are typical for domestic enterprises of food and processing industry: 1) the quality management system in accordance with the requirements of State Standard of Ukraine (SSU) ISO 9001 has been implemented by 449 enterprises, 46 are currently engaged in its development and implementation; 2) the food safety management system in accordance with the requirements of SSU ISO 22000 has been implemented by 686 enterprises, 129 are under development and implementation [Ministry of Agrarian Policy and Food of Ukraine: official website].

However, the ISO 22000:2005 standard stipulates that the application of HACCP principles should be preceded by the implementation and maintenance of prerequisite programs (PRP) for the safety of livestock products in agricultural enterprises. These programs provide effective control and management of hazards in feed production, feeding, watering and grazing, identification, health monitoring, use of veterinary drugs, milking, etc. The need to implement measures to manage hazardous factors in the production, transportation, storage and other handling of livestock products is also provided by Article 40 of the Law of Ukraine 'On Basic Principles and Requirements for Food Safety and Quality', the provisions of which entered into force in September 2016 [On the basic principles and requirements for food safety and quality: Law of Ukraine]. At the same time, the mechanism of development and implementation of these prerequisite programs is regulated by the standard ISO 22002-3:2011 'Programs-prerequisites for food safety. Part 3. Agriculture', which has not yet been approved in Ukraine as a national one. Accordingly, the mechanism of implementation and application of these prerequisites in the practice of domestic agribusiness has not yet been approved. Thus, in the system of technical regulation of quality assurance and safety of livestock

products there was a collision: agricultural producers need to take measures within the second stage of ensuring the safety of livestock products (implementation of HACCP principles), having no idea what mechanisms to implement measures of the first stage (development and implementation of programs - prerequisites in animal husbandry).

In Ukraine, there is a need to approve more than a dozen technical regulations that would determine the mandatory requirements for the processes of production, storage, transportation, circulation of major livestock products: milk, meat (beef, pork, lamb, goat, poultry, etc.), table eggs, and feed. Currently, for only a few of them the projects have been developed, including draft technical regulations 'Raw milk production and quality and safety management', 'Confirmation of safety and quality requirements for fish feed' and others.

In developed countries, standardization is developing mainly due to the active participation of large agro-industrial associations, cooperatives, associations, large exporters, TNCs, etc. However, in Ukraine the financing of standardization works is carried out mainly at the expense of the state budget. The amount of such funding should be quite significant. For example, the total cost of adapting to EU standards in the Polish meat industry alone was around € 2 billion [State Service of Ukraine for Food Safety and Consumer Protection]. In the absence of funds in the required amounts in Ukraine, government agencies are unable to address all issues of standardization, resulting in non-compliance of national regulations with modern requirements. Public bodies, movements and consumer associations have almost no authority and ability to influence the processes of quality assurance and control.

Currently, the safety and quality of most livestock products is controlled by outdated standards and requirements. Most of them do not contain detailed requirements for the content of certain antibiotics, hormones, modern veterinary drugs, residues of chemicals (including dioxin), insecticides, as in the EU. For example, in a number of EU countries (Germany, Belgium, the Netherlands, France, Spain) in 2017, an 'egg scandal' broke out due to the fact that eggs and chicken were found in the remains of chemical fipronil - an insecticide used to treat mites and cockroaches. In Ukraine, the current standards do not provide for the control of livestock products for the content of this drug.

According to some indicators of milk safety, the requirements of the current domestic DSTU are significantly inferior to the requirements of the EU and the US (Table 3).

**Table 3** - Comparative analysis of milk quality standards in the USA, EU, Russia and Ukraine

The number of somatic cells (thousand/ml)	Bacterial clogging (thousand cells/ml)	USA	EU	Rus	Ukraine	
					SSU 3662-97	SSU 3662:2015
< 100	< 3					
< 100	< 5	cl. A				
< 100	< 30		Ex			
< 150	< 5	cl. B				
100-200	30-50		Good			

ALINA PROSHCHALYKINA, VOLODYMYR HUNIA

< 200	< 10	cl. C				
200-350	30-50	Unsuitable	Sat			
< 300	< 100			Top grade		
< 400	< 100		Bad		Extra	Extra
301-500	101-500		Unsuitable	I grade		
< 400	< 300				Top grade	Top grade
350-500	300-500					
> 500	> 500					
501-1000	501-4000			II grade		
< 600	< 500				I grade	I grade
< 800	< 3000				II grade	Unsuitable

**Source:** data from the Ministry of Agrarian Policy, own research

According to European requirements in Ukraine, the only milk considered satisfactory that meets the extra grade. Simple tightening of standards, formal tightening the requirements for milk quality will not solve the problem, because its main production provided by the private sector, where from, the milk of the second grade comes. Processing companies, due to the lack of raw materials, in many cases, take milk with a bacterial inoculation of more than 3 million cells per milliliter for processing, i.e. the milk that does not meet even the second grade.

There are differences in European and domestic standards of animal welfare as a prerequisite for high quality products. Requirements for animal welfare, missing in national standards, are described in table 4.

**Table 4 -** European requirements for animal welfare missing in domestic standards

Nº	Animal species or process	Official document and content of requirements
1	All species	Council Act 98/58 / EC52. It is necessary to ensure 5 types of welfare for farm animals: freedom from thirst, hunger or improper feeding; freedom from physical and physiological discomfort; freedom from pain, injury and disease; freedom from fear and chronic stress; freedom of expression of natural (inherent in a particular species of animal) behavior.
2	Laying hens	Council Act 1999/74 / EC. For free-range systems, there are requirements for feed chutes, drinking water supply, seat space, floor construction, litter area (at least 250 cm <sup>2</sup> per hen) and number of nests per hen (at least one nest for every seven hens). Planting density should not exceed 9 laying hens / m <sup>2</sup> of usable area.
3	Calves	Council Act 2008/119 / EC. Calves should be tethered for only 1 hour during feeding. Calves over 8 weeks of age are not allowed to be kept in individual pens (except for farms with less than 6 calves). Calves kept in groups must have a minimum space depending on weight (up to 150 kg - not less than 1.5 m <sup>2</sup> ; from 150 to 220 kg - not less than 1.7 m <sup>2</sup> ; above 220 kg not less than 1.8 m <sup>2</sup> ). Requirements for minimum unit size (for individual maintenance up to 8 weeks), minimum daily amount of fibrous food for calves older than 2 weeks, average hemoglobin content in the blood (> 4.5 mmol/l), access to sufficient fresh water, feeding frequency.

4	Pigs	Council Act 2001/88 / EC. Sows and piglets should be kept in groups from 4 weeks after fertilization and up to 1 week before expected farrowing, and should have access to manipulation materials / toys for pigs. Directive 2001/93 / EC. Requirements for housing conditions (minimum floor area per animal, floor surface type), noise level (constant noise level up to 85 dB), light intensity (not less than 40 lux, not less than 8 hours per day), feeding (not less than one once a day), weaning age (at least 28 days), prevention of aggressive behavior, rules prohibiting infliction of bodily harm to pigs.
5	Slaughter	Council Regulation (EC) (1099/2009. Animals could be slaughtered only after stunning. The method of stunning should directly cause loss of consciousness or, if not, should prevent fear, pain, stress and unnecessary suffering. This condition should last until the animal dies due to bleeding. The animal must be bled quickly and prevented from regaining consciousness before death. You need to incise the carotid artery and jugular vein or, as recommended by EFSA, both carotid arteries.

**Source:** compiled by the author based on [Handbook for small and medium-sized..., 2011]

If animals imported outside the EU, they have to be documented by a certificate attesting to keeping them on adequate terms. Failure to comply with the abovementioned requirements makes it impossible to export live animals to the EU, as well as their side products. In addition, the EU is subject to certification of soils on which feed is grown, feed itself, as well as equipment, personnel. Accordingly, there is effective control throughout the chain from production to consumption. In some EU countries (particularly the United Kingdom), an enterprise does not participate in government procurement unless it is certified [Marenych, Aranchiy, Maryukha 2009].

Thus, the problem of guaranteeing the quality of livestock products is a complex problem, and along with solving these issues in the field of technical regulation, it should be based on certification of production, and only then - on product quality control. There is a need to intensify work in Ukraine on the formation of a similar to the European integrated quality certification system PDO / PGI / TSG for livestock products [Kovaleva]. The result of its creation will be the protection of economic interests and increase the marketing potential of domestic producers, especially small and medium.

Given the short deadlines for the formation of a close to the European national system for ensuring the quality of livestock products, the significant amount of work that needed to be done, the lack of adequate funding and qualified professionals, this system must be further improved.

**Conclusions.** The example of the EU shows that guaranteeing the quality and safety of livestock products, ensuring consumer satisfaction with information on the level of such quality is a basic public good, which testifies to the effectiveness and efficiency of the state's performance of its functions. European scientists have thoroughly studied various factors of safety and quality of livestock products (genetics, nutrition, quality management methods, environmental protection, animal health, etc.) and the possibility of their interaction. Currently, the 'classical' analysis of the qualitative characteristics of these products is rapidly expanding due to the development of genetic technologies. Research using genes and data markers is promising, the identification and display of which will contribute to the achievement of certain breeding goals.

However, in Ukraine, instead of looking for ways to improve the quality of milk, meat, eggs, etc., increase their content of useful fatty acids and other elements, there is a widespread trend to increase the consumption of fats of industrial origin, which contain excessive amounts of trans isomers. Thus, the prospects for further scientific research are to develop specific legislative and organizational and economic mechanisms to ensure the quality and safety of livestock products in Ukraine, which would take into account the latest approaches revealed in the study within the European experience.

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Received: 12.10.2020

Accepted: 19.10.2020

Published: 31.10.2020

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**MACRO FACTORS INFLUENCING THE FORMATION OF STANDARDIZED MANAGEMENT SYSTEMS OF AN ENTERPRISE**

**Abstract.** This article is devoted to the environmental factors, influencing the implementation of standardized management systems of the enterprise at the country level. The problem is considered from the perspective of systems theory and complexity theory.

The research focuses on management systems created following ISO 9001 and ISO 14001 standards and their relationship with the external environment. The study involved 20 European countries with different levels of economic and innovative development.

The formation and subsequent development of standardized management systems (SMSs) require considering environmental factors, the context of the enterprise, which is reflected in the provisions of standards for management systems. However, the issues of the influence of environmental factors on the decision of enterprises to implement standardized management systems have been insufficiently studied.

The work contains three hypotheses: a) about the connection between environmental factors and the introduction of SMSs by enterprises; b) about the diversity and uniqueness of the configurations of environmental factors affecting the spread of the SMSs in different countries; c) regarding the presence of similar structures of environmental factors influencing the spread of the SMSs in separate countries, which would make it possible to identify the basic types of such configurations.

The study resulted in confirmation that a connection between environmental factors on the implementation of the SMSs exists, and groups of aggregated factors along with their components were identified. The features of the configurations of factors influencing the SMSs in different countries were considered. A distinctive type of influence of the external environment on the SMSs board, common for several European countries, was revealed, and called as 'denying'.

Correlation analysis was used to determine the relationship between the factorial and the resulting characteristics, the results of which were subjected to qualitative discussion.

Further research in this direction should cover a larger number of countries and factors influencing the formation of the SMSs. This will allow identifying a greater number of basic types of external environment influence on the formation of SMSs for enterprises in different countries and regions.

**Keywords:** standardized management systems (SMSs), environment, macro factors, ISO 9001, ISO 14001

Formulas: 0, fig.:1, tabl.: 5, bibl.: 54

**JEL Classification:** E66, L15, O44, O52

**Introduction.** The creation and subsequent development of such systems should take place dependent upon the context of an organization as follows from corresponding standards. However, little attention has been paid insofar to the clarification of the impact of the organizational context on the implementation of standardized management systems.

As open systems, enterprises should maintain the conformity between internal processes, including managerial ones, and changing external conditions. Due to a significant complication of the factors of the environment, the degree of complexity of internal processes increases, which may eventually lead to the making of erroneous judgements about organizational changes, reconfigurations, transformations, and, among others - issues related to standardization and development of management systems. The problem grows more acute as in the practice of management prospect results of organizational moves are rarely assessed in terms of complexity. Hence, knowledge of external factors, which incite the introduction of standardized management systems at the enterprise-level is to allow managers to get more balanced, timely, and impartial approach to decisions in this area and ensure the sustainable development of the enterprise.

This paper examines the relationship between decisions on the implementation of the most common standardized management systems (SMSs) certified with ISO 9001, ISO 14001, ISO/IEC 27001, and ISO 50001 against environmental factors at the level of several European countries.

**Literature review and the problem statement.** Standardized management systems emerge as a response to the increasing complexity of environmental factors [Cawsey, Deszca, Ingols, 2012; Castillo-Martinez, Medina-Merodio, Gutierrez-Martinez, Fernández-Sanz, 2021; Dźwigoł, Shcherbak, Semikina, Vinichenko, Vasiuta 2019; Kotter, 1996; Nadler, Tushman, 1980] and extending degree of complexity of the enterprise management system (differentiation). Emerging is followed by a lengthy integration process that decreases the complexity of the system [Gorlova, 2020b]. Anyway, an integrated management system should have the degree of complexity corresponding to the degree of the external environment, and change following changes in it.

Since the beginning of this century, formation of SMSs are increasingly viewed in the context of their integration. Integration aspects are mainly examined at the micro level, within an enterprise [Bernardo, A. Tarí, J. J. Molina-Azorín, J. F., 2015; Dahlin & Isaksson, 2017; Maier, Vadastreanu, Keppler, Eidenmuller, & Maier, 2015; Odigie M., Badar, Sinn J., Moayed, & Shahhosseini, 2017; Olivera Matias & Coelho, 2011; Siva et al., 2016; Trierweiller, 2016]. Many researchers point out at difference in conditions under which enterprises function in different countries. In their opinion, this difference causes a substantial variety in how different elements of SMSs is managed in different countries [Jørgensen, Remmen, & Mellado, 2006]. Note that obtained results prove the similarity of positive results and problems faced by enterprises of various European countries through SMSs formation and development [Bernardo, Gianni, Gotzamani, Simon 2017].

SMSs integration connects the process of management system differentiation within the cycle of organizational development – that is not studied under systemic approach. Introduction or reorganization of existing SMSs prompts the differentiation, loading the

control system with new subsystems, which further increases a degree of management complexity [Czyżewski, Matuszczak, Miśkiewicz 2019; Dzwigol, Dzwigol-Barosz, Kwilinski 2020]. Consequently, the question arises how to align increasing complexity of management system with its ability to meet the challenges of the environment while preserving holism, that is what is the limit of the effectiveness. This makes the study of the environmental factors impact to the choice to adopt, implement and develop SMSs particularly important.

Hence follows the hypothesis that there exists a relation between environmental factors and the implementation of standardized management systems in enterprises.

Consequently, the first task of the study is the determination of environmental factors, whose influence on the formation of the SMSs is to be studied further.

The very concept of the external environment of an enterprise appeared in the narrative of organizational science in the late 1950s - early 1960s as a result of the development of systems theory [Hatch, 2002]. Since then, several concepts further explaining the relationship between an organization and its environment have emerged, however many means, as the definition of the environment through its elements, formulated in the early stages are still in use today. Thus, the external environment of an enterprise consists of three levels: micro, macro, and mega. At the micro-level, the factors of the inter-organizational logistics network (customers, suppliers, partners, controlling organizations, etc.) function. At the macro level act such groups of factors as political and legal, socio-economic, socio-cultural, technological, environmental. The mega-level embodies elements, which operate global influences. This study examines the macro factors acting within individual countries, which affect all enterprises within it, regardless of configurations of the supply networks they form and their role in them.

Quality management and environmental management systems are the most widespread in Europe and worldwide [Dzwigol 2020; Kwilinski, Vyshnevskiy, Dzwigol 2020]. These systems primarily make it possible to consider the interaction of environmental factors with standards. The effects of quality and environmental protection issues are foremost associated with environmental socio-cultural factors. This group of factors also encompasses concepts such as leadership, rationality, material well-being, the importance of human rights, and hierarchical status, etc. The history of the development of quality management systems shows that they were formed and developed essentially at leading enterprises (for example, at Ford and Toyota), leading industries (for example, automotive) and leading countries (USA, Japan, UK) [Drozd, Miskiewicz, Pokrzywniak, Elzanowski 2019; Dzwigol, Dzwigol-Barosz, Miskiewicz, Kwilinski 2020; Miśkiewicz, Wolniak 2020]. Leadership manifests itself in a competitive environment, which links quality with the concepts of competition and competitiveness. The competitiveness of an enterprise, in turn, ensures its financial well-being and the interests of its various stakeholders. In this context, the concept of Total quality management (TQM) emerges. In management theory, TQM arises as a tool to improve the competitiveness of an enterprise. Accordingly, the SMSs, based on the principles and methods of TQM, should be considered as a tool for increasing the competitiveness of an enterprise. Assuming that the competitiveness of an organization is connected to that of the country, it is supposed to exist relations between the number of implemented SMSs, and competitiveness of the country.

In developed countries, there has been a tendency to reduce the value of hierarchical status, which takes the form of flat management structures of enterprises with a higher

degree of delegation of authority since the end of the last century. Earlier, we substantiated the vital importance of delegating for the effective integration of the SMSs into the general management system of the enterprise [Gorlova, 2020a, 2020b]. Thus, the readiness of management to delegate plays a crucial role in the successful implementation of SMSs by enterprises and therefore works as a factor stimulating the implementation of ISO standards for management systems (MSs).

Corruption appears as one of the significant environmental factors influencing the management of organizations. It directly affects the political, legal and socio-economic factors of the external environment and indirectly - all those, where the interaction of people exists. It is difficult to make an unambiguous assumption about the impact of corruption on the expansion of SMSs in business. On the one hand, the implementation of SMSs can be viewed by enterprise management as an anti-corruption tool that reduces the influence of corruption within the company. However, a diminishing level of corruption in the external environment, in our opinion, may cause increasing the efficiency of the implementation of SMSs. Thus, a decrease in corruption level in society is likely to lead to more intensive development of SMSs by enterprises.

Among the socio-cultural factors affecting the development of quality and environmental management institutions such as the educational system and traditional professions play an essential role. In terms of quality and environment management, the influence of individual values formed in the process of socialization, including under the influence of religion draw special attention. That comes into the light when comparing the Japanese, American or European schools of quality management. As this study is focused exclusively on European countries in which a homogenization of individual values is gathering momentum, issues of socialization, dominant values and religion are not included.

For some of the leading European countries, trade is a traditional field of activity, which forms the basis for economic development. In these countries, it is supposed to find the impact of trade on quality and environmental management; the impact may take the form of ability of enterprises to meet any requirements of consumers, both in domestic and foreign markets.

The high level of consumer demands is resulting from an accustomed level of consumer experience and education. Leading enterprises not only meet the high demands of consumers, but they are also able to create demand, lead the consumer ahead, thereby increasing the level and quality of his experience. For this, the management of an enterprise must have an advanced level of knowledge and competencies. Therefore, we believe that the level of education of managers plays a more significant role in the development of quality and environmental management than the education and sophistication of customers.

The development of education at the macro level is closely related to the development of science. Such a relationship illustrates the interaction of social and technological factors of the external. At present, innovative types of products that require constant efforts from enterprises to maintain their competitiveness meet the highest demands. Accordingly, the following technological factors as the level of development of science, the international prominence of scientific institutions, the level and pace of innovative development of the economy, as well as the share of high-tech products and services in exports of the external environment may play the role influencing the spread and development of

quality and environmental management. Science and technology development also impacts the decision of enterprises to implement standardized information security and energy management systems.

The innovative track of a country economic development presumably connects to the development of the institution of intellectual property protection. From our point of view, this factor stimulates the activity within an enterprise on improving quality and protecting the environment.

Economic factors are closely related to all other groups of environmental factors, mentioned above. Thus, among the technological factors, the export of high-tech products was singled out. Among other economic factors affecting the spread of SMSs, the following seem to be also important: share of national producers in the domestic market, the productivity of labour, especially in relationship with technical and social factors, the ratio of the growth rates of labour productivity and wages. The productivity of labour and the ratio of its growth rates to the growth of wages characterize the degree of development of business processes within the organization. We assume that the higher the degree of development of business processes, the less the enterprise needs to implement SMSs. However, in this situation, the strength of government control of business matters. If the pressure of government regulation on business is high, then, in our opinion, the implementation of SMSs enterprises is more likely.

It is also possible to assume that the decision to implement SMSs is under the influence of the institution and practice of standards application existed in the country. That is, with the presence of the developed culture of standardization of processes enterprises more incline to accept the idea of implementing any standard regulating their activities, including ISO standards on MSs. If management perceives ISO standards for MSs as a tool to provide the stability of high-quality performance, this belief also influences the choice to implement SMSs. This was the example of Polish enterprises, introduced SMSs on the eve of joining the EU, as well as with Ukrainian enterprises, reorienting themselves from the Russian market to the market of the EU.

We can draw the following conclusion about the composition of the factors influencing the formation of SMSs: a) there exists a group of aggregated factors, which includes the national competitiveness, the level of development of innovations of the national economy, the degree of corruption in the country; b) there also exists the second group, which includes sub-factors of aggregated factors. The second group of factors should include the following: the willingness to delegate authority, the level of development of management schools, the level of training of specialists in the field of technology, the level of education and awareness of consumers, the degree of customer orientation of business, the level of development of science in the country, the international recognition of scientific institutions of the nation, the share of high-tech products and science-intensive services in the national export volume, the development of the institution of intellectual property protection, the share of the market of national producers in the domestic market, the productivity of labour, the ratio of the growth rates of labour productivity and wages, the strength of the institution of standards application in business, the pressure of government regulation of business. To assess the national competitiveness, the ranking of Global Competitiveness Index by World Economic Forum was used [Schwab, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019].



The Summary Innovation Index [European Commission-DG Enterprise and Industry, 2010, March 17, 2011, February 1, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020a, 2020b] was used to quantitatively represent the innovative level of economic development of the countries.

The Corruption Perception Index [Transparency International, 2020] was used to quantify the level of corruption in the country.

To select the indicators of the factors of the second group, the methodology of calculating the Global Competitiveness Index and the European Innovation Scoreboard were applied. Both methodologies underwent several changes over the period 2010-2019. As a result of the study, several indicators were selected, the values of which can be tracked sequentially by year for the period from 2010 (Tabl.1).

**Table 1** - Environmental factors presumably influencing the formation of standardized management systems

Sector of environment	Factor indicators
Socio-cultural	Willingness to delegate authority
	Quality of management school
	Buyer sophistication
	Degree of customer orientation
	Reliance on professional management
	Strength of auditing and reporting standards
Technological	Quality of scientific research institutions
	Employment in knowledge-intensive activities
	SMEs with product or process innovations
	SMEs with marketing or organizational innovations
	Utility patents per million population
Legal	Intellectual property protection
Economical	Extent of market dominance
	Pay and productivity
	Company spending on R&D
	Public R&D expenditures
	Business R&D expenditures
	Medium and high-tech product exports
	Knowledge-intensive services exports
Political	Burden of government regulation

**Source:** developed by the author on the basis of data from *The Global Competitiveness Reports 2009-2020*, *European Innovation Scoreboard 2009-2020*, *European Innovation Scoreboard 2019 - Methodology Report*

For the study, 20 countries were selected, including 16 EU countries, the UK that was withdrawal from the EU on February 1, 2020, Serbia, which is a candidate for accession to the EU, Ukraine, as well as Russia, which officially belongs to European countries. The selected countries make up 40% of the independent states of Europe in terms of the number of countries and about 45% of the number of independent states completely located in Europe. Also, they occupy 77.4% of the territory of Europe, where 78.1% of the European population lives. The countries selected for the study produce about 87% of the GDP in PPP (purchasing power parity) of the countries that are entirely European (including Russia).

The positions of the selected countries in the global economy and innovation rankings are presented in Tabl. 2.

**Table 2** - Position of the countries selected for the study in international economic rankings in 2019

Countries	Ranking by GDP (nominal) per capita	Ranking by GDP (PPP)	The Global Competitiveness Index Rankings	Rank/performance group* of country on the European Innovation Scoreboard
Ireland	4	47	24	13/SI
Netherlands	13	25	4	5/IL
Sweden	14	38	8	2/IL
Germany	18	5	7	10/SI
United Kingdom	25	9	9	8/SI
France	28	8	15	14/SI
Italy	33	11	30	22/MRI
Spain	39	15	23	18/MRI
Portugal	46	50	34	16/SI
Greece	50	53	59	24/MRI
Lithuania	51	84	39	23/MRI
Slovakia	52	69	42	25/MRI
Latvia	54	103	41	27/MRI
Hungary	58	54	47	26/MRI
Poland	62	20	37	30/MRI
Romania	67	35	51	37/MSI
Russian Federation	71	6	43	32/MSI
Bulgaria	83	72	49	33/MSI
Serbia	107	79	72	29/MRI
Ukraine	145	39	85	36/MSI

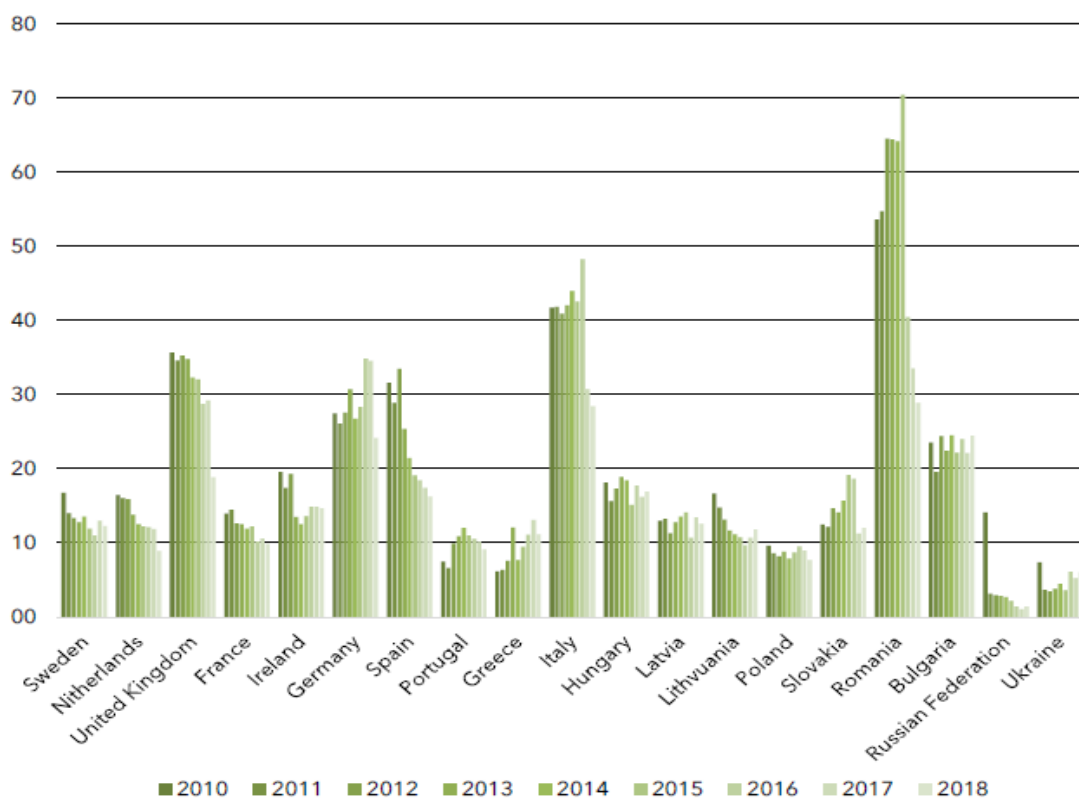
\*author's abbreviation for terms in the European Innovation Scoreboard: IL - Innovation Leader, SI - Strong Innovator, MRI - Moderate Innovator, MSI - Modest Innovator.

**Source:** developed by the author on the basis of data from [European Commission-DG Enterprise and Industry, 2020a; Schwab, 2019; The World Bank, 2020, n.d.]

The resulting indicator of the impact of certain environmental factors on the implementation of the enterprise standardized management systems in any country is the number of valid certificates for management systems.

To compare the indicators of different countries, we used the approach proposed by us in an earlier study. For comparison, we calculated the relative indicators of the number of operating SMSs per 1000 enterprises: Total number of MSs formed following ISO 9001, ISO 14001, ISO / IEC 27001, and ISO 50001 per 1000 enterprises (Fig. 1) and Number of MSs formed following ISO 9001 & ISO 14001 per 1000 enterprises.

Note that in the statistical data of the EU countries, you can find the relative indicator of the number of certified management systems per population of the country. In our opinion, this approach is not objective, since standardized management systems are associated with enterprises and their activities, but not with individuals.



**Figure 1** - Total number of management systems formed in accordance with ISO 9001, ISO 14001, ISO/IEC 27001, and ISO 50001 (with valid certificates) per 1000 enterprises  
**Source:** developed by the author on the basis of data from [Eurostat, 2020; International Organization for Standardization, 2020]

The relative indicator of the total number of MSs shows the differences in prevalence levels and dynamics of SMSs across Europe. That is the reason to expect a variety of sets of factors stimulating the implementation of SMSs in different countries.

Thus, the second hypothesis is that each country has its own set of external environmental factors that influence their decision to introduce standardized management systems.

The third hypothesis is as follows: there exist similar configurations of the external environment of enterprises, which impact the introduction of standardized enterprise management systems.

International Organization for Standardization states that “the ISO Survey is not a database. The providers of the data are the certification bodies accredited by IAF members and they participate voluntarily. The level of participation fluctuates from one edition to another and can impact the survey results especially at the country level. Interpretations of the results and any conclusions on the trends should be made with this in mind” [International Organization for Standardization, 2020]. It follows that a full statistical analysis of the ISO Survey data cannot be performed. However, they reflect the general trend of change in the number of operating SMSs at the enterprises of the country and are suitable for undertaking a qualitative analysis.

Therefore, the aim of this article is to study the influence of country-level environment factors on the implementation of standardized management systems of enterprises.

**Research results.** The determination of the relationship between factorial and resulting characteristics is done with correlation analysis, the results of which then were put to qualitative discussion. Correlation analysis confirmed the hypothesis of the existence of a relationship between environmental factors and the implementation of standardized management systems of enterprises. Each country covered by the study, reveals the unique configuration of factors influencing the formation of the SMSs, which confirmed the second hypothesis. The result of the correlation analysis of the influence of the aggregated factors on SMSs is presented in Tabl. 3.

**Table 3** - The nature of the relationship and the frequency of the environmental factor affecting the formation of SMSs

Nº	Aggregated factors	Sweden	Netherlands	Lithuania	United Kingdom	Germany	Italy	Spain	Greece	Russian Federation	Frequency
correlation with relative index of SMSs (ISO9001+ISO14001+ISO/IEC 27001+ISO 50001)											
1	Global Competitiveness Index				-		-				2
2	Summary Innovation Index		-	-							2
3	Corruption Perceptions Index			-				+	+	-	4
correlation with relative index of SMSs (ISO9001+ISO14001)											
1	Global Competitiveness Index				-	-	-				3
2	Summary Innovation Index	+	-	-							3
3	Corruption Perceptions Index		+	-	-			+	+	-	6

Note: Signs + (plus) and - (minus) show a positive or negative relationship between variables

**Source:** developed by the author on the basis of data from *The Global Competitiveness Reports 2010-2020*, *European Innovation Scoreboard 2010-2020*, *Corruption Perceptions Index 2010-2019*.

The different nature of the correlation allows us to conclude about the existence of different approaches to how management sees the role of SMSs in the relationship of the enterprise with its external environment in different countries. From our point of view, in countries where the relationship between the dynamics of corruption and SMSs is negative, the management of enterprises considers SMSs as a tool to counteract and balance the negative external influence of corruption, which, in turn, allows to create a healthier and motivating environment within the enterprise. These countries are known because of their developed culture of doing business and a significant number of institutions, which preserve and develop this culture. In this case, SMSs is likely viewed as a tool for protecting internal values from the corrosive influence of the external environment, aimed at maintaining its path to sustainable development.

In countries where the relationship is positive, business tends to ignore SMSs as a tool to protect the organizational culture; however, it uses standards mainly to modernize internal business processes. The latter is typical for countries that are active followers of innovation leaders [Romer, 1986, 1994]. If the national economy has a high level of development of business processes, then with the strengthening of corruption in society, the management of enterprises will rather try to prevent the implementation of SMSs to make their business less transparent from the external intrusion.

Thus, the absence of SMSs eliminates the need to undergo an audit and disclose information. At the same time, in countries where exists a close connection between SMSs of enterprises and the external environment, an increase in innovative activity counterbalance the decrease in management standardization. The Netherlands is a striking example of such a model of the interrelation of SMSs of enterprises with the aggregated factors of the external environment (the Netherlands show the largest number of environmental factors correlating with SMSs from the entire set of surveyed countries).

The influence of the innovativeness of the national economy on the formation of SMSs in enterprises was revealed in the Netherlands, Lithuania and Sweden. In Lithuania and the Netherlands, the intensification of innovative development compensates the slowdown in the spread of SMSs. Observed at the same time relative reduction in the number of SMSs is attributed to other reasons, far beyond the scope of the present article.

Sweden is traditionally credited with a high level of production of innovative products. Since SMSs are predominantly formed in the sphere of production, decrease SMSs may be attributed to the decrease in innovative activity.

The influence of competitiveness was revealed only in countries with a highly developed both economy and business processes in both production and trade (the UK, Germany, Italy). This explains the fact that a further increase in the competitiveness of the economies of these countries is carried out due to external expansion and leads to a decrease in business interest in standardizing business processes.

The frequency of the revealed correlation for the factors of the second group influencing the formation of SMSs is presented in Tabl. 4.

**Table 4** - Frequency of environmental factors affecting the formation of SMSs (number of countries where such an influence has been identified)

Nº	Factors	Frequency	
		correlation with relative index of SMSs (ISO9001+ISO14001+ ISO/IEC 27001+ISO 50001)	correlation with relative index of SMSs (ISO9001+ISO14001)
1	Public R&D expenditures	6	8
2	Employment in knowledge-intensive activities	6	7
3	Company spending on R&D	5	7
4	Quality of scientific research institutions	6	6
5	Quality of management school	6	5
6	Willingness to delegate authority	4	6
7	Utility patents per million population	5	5
8	Strength of auditing and reporting standards	5	5
9	Burden of government regulation	4	5
10	Knowledge-intensive services exports	4	5
11	Business R&D expenditures	4	4
12	Buyer sophistication	3	4
13	Medium and high-tech product exports	3	4
14	SMEs with product or process innovations	4	3
15	SMEs with marketing or organizational innovations	3	3
16	Pay and productivity	3	3
17	Intellectual property protection	2	3
18	Degree of customer orientation	2	3
19	Extent of market dominance	2	2
20	Reliance on professional management	1	2

**Source:** developed by the author

The results of the analysis show that in European countries the most common factors influencing the formation of SMSs are technological and economic ones, related to the innovative development of the economy, and socio-cultural factors, which reflect the degree of development of management in the country and the tradition of using standards in doing business. The factor of government regulation pressure on business was also extensive. The determined correlation of the most common environmental factors with SMSs is presented in Tabl.5.

In Bulgaria, Russia and Ukraine none of the selected environmental factors showed a significant correlation with SMSs. From our point of view, this indicates that in these countries the largest number of enterprises ignores the tendencies of changes in the external environment when forming SMSs. As a result, the complexity of such enterprises, including the complexity of their management systems, does

not correspond to the complexity of the external environment, which makes them vulnerable to its impact, lagging behind external development or ineffective because of excessive internal complexity, which hinders their sustainable development.

**Table 5** - Correlation of environmental factors with MSs formed in accordance with ISO 9001&ISO 14001

Factor No*	United Kingdom	France	Netherlands	Ireland	Italy	Hungary	Lithuania	Slovakia	Latvia	Germany	Poland	Spain	Romania	Sweden	Portugal	Greece	Serbia
1		+	+	+	+	+		+							-		+
2	-		-	-			-					-	-	-			
3	-	-	-	-								-		+		+	
4	-	-	-				-								+	+	
5			-	-						+	+		+				
6	-				-			-						+		+	
7		-					-							-	+	+	
8			-		-								-			-	+
9	-	-	-	-			-										
10	-	-	-			-						-					
11			-				-					+	-				
12							-					+		+			-
13			-			-			-				-				

\*Factor No according to tabl.4

Note: Signs + (plus) and - (minus) show a positive or negative relationship between variables

**Source:** developed by the author

The data in Table 5 allow us to draw the following conclusions: a) it is possible to identify countries with a similar configuration of factors affecting SMSs of enterprises, which represent certain basic types; b) it is possible to single out the countries that, by the configuration of their factors influencing SMSs of enterprises, tend to the basic types; c) there exist countries whose factor configuration is unique.

Great Britain, France and the Netherlands represent the first type, whose distinctive features are as follows. When deciding on the implementation of SMSs, enterprises first consider trends and priorities in public funding for the development of science and technology; enterprises use developed business processes; therefore, SMSs do not stand as an obligatory tool for increasing competitiveness and efficiency; enterprises are focused on innovative development, which is built on the knowledge economy, developed institutions, and management practices. This type we call 'denying'. Ireland, Italy, Hungary, Lithuania gravitate to it, although their configuration of factors influencing the formation of SMSs is much narrower.

One-factor types of the external environment influencing adoption of SMSs are also revealed, the example of which is Latvia. In Latvia, the larger is the share of exports of medium - and high-tech products, the stronger the integration into the EU space, and the stronger is the perception of the 'denying' type of external influence on the formation of SMSs. In Germany and Poland, the quality of the management school turns out to be the main factor of the external environment influencing the formation of SMSs. That is the management institutions and practice of management form the common business opinion about the need for SMSs, and their efficiency, and effectiveness.

The identified types of influence of the external environment on SMSs confirm the third hypothesis that about the existence of similar types of configuration of the external environment of enterprises that stimulate the implementation of standardized management systems.

The configurations of environmental factors influencing the formation of SMSs in other surveyed countries are unique. They comprise factors with contrary directed effects on SMSs. Configuration of the factors of Spain and Romania reveals a strong influence of the 'denying' type of connection between the external environment and SMSs of enterprises.

In Sweden, SMSs are positively correlated with increased R&D spending, mounted willingness to delegate, and consumer sophistication. At the same time, an increase in the share of employment in knowledge-based activities and an increase in patents per million of the population lead to a decrease in the need for SMSs. This again reveals the feedback of the innovative creative way of development in Sweden as opposed to standardization and bureaucratization of business processes, which was previously revealed in the analysis of the influence of aggregated factors.

The configuration of factors in Portugal most closely resembles that in France, but all factors have an opposite effect on SMSs.

Factors influencing the formation of SMSs in Greece have a positive relationship with SMSs, except for the strength of auditing and accounting standards. Contrary to our expectations, the tradition of using standards in the company's activities showed a positive relationship with SMSs only in Serbia. In the other four countries, including Greece, where such correlation with SMSs was detected, the nature of this connection turned out to be negative.

**Conclusions.** As a result of the study, it was confirmed that there was a connection between environmental factors on the implementation of SMSs, and groups of generalized (aggregated) factors and their components were identified. It seems interesting that there is no unified model or a unified configuration of environmental factors for making decisions on the implementation of SMSs. The studied countries can be divided into groups not only by influencing factors but also by this direction. The negative influence of environmental factors on the implementation of SMSs is revealed, which suggests that the development of SMSs itself is not an indispensable, universal condition for the growth of the competitiveness of enterprises and the economy as a whole. This issue should be resolved in the context of the dominant nature of management, the model of innovative development and place of a country in the "innovator - follower" pair within the framework of the endogenous theory of innovation and the model of economic development in general. It is also important



that there is a connection between the introduction and development of SMSs and the extent of corruption, as well as the intensity of government intervention in the economy and dominant management practices. At the same time, the expected and seemingly logical relationship between the standardization of certain operations and types of activities, such as the implementation and practice of using accounting and auditing standards, did not show either a positive or a negative correlation for most countries. In those countries where it was identified, the relationship was negative.

Concerning Ukrainian economy, the question of the factors affecting the external environment on the implementation of SMSs remained unresolved, which provides an obvious direction for further research. In a broader perspective, it is important both to build quantitative models linking the factorial and resulting features of this process, and to identify conditions that cause a change in the nature of the relationship between innovation and the development of SMSs from positive to negative. It is also of interest to clarify the relationship between the degree and nature of knowledge management with the implementation of SMSs. Further research should cover a larger number of countries and factors influencing the formation of SMSs. We believe that this will make it possible to identify a greater number of basic types of external environment influencing the formation of SMSs in enterprises of different countries and regions.

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Received: 15.10.2020

Accepted: 25.10.2020

Published: 31.10.2020