

THE STATE AND WAYS OF UKRAINIAN FOOD INDUSTRY DEVELOPMENT IN TERMS OF INTEGRATION INTO EUROPEAN ECONOMIC SPACE

Olena Boiko¹, Nataliia Vasiutkina², Oleksandr Bavyko³, Svitlana Yermak^{3*}

¹Department of Innovation Policy, Economy and Organization of High Technologies,
State Organization "Institute for Economics and Forecasting,
Ukrainian National Academy of Sciences", Panasna Myrnoho Street 26, 01011 Kyiv, Ukraine

²Department of Management and Marketing, Faculty of Economics and Management,
Private Higher Educational Establishment "European University",
Akademika Vernadskogo Blvd, 16-V, Kyiv, 03115, Ukraine

³Department of Entrepreneurship and Trade, Institute of Business, Economics and IT,
Odessa National Polytechnic University, Shevchenko avenue 1, 65044 Odessa, Ukraine

*e-mail: kaf.econ.kr@gmail.com

Abstract

The aim of the work is to study the current state, problems and priority directions of the food industry development in Ukraine, based on a synthesis of international experience, which should be considered in terms of integration into the European economic space.

The information base for research are the official materials of the State Statistics Service of Ukraine. Using statistical methods (absolute and relative statistical values, sample, and series of dynamics) have been evaluated key performance indicators and defined nature of the dynamics and structure of export of food products. Based on the systematic and structural approach have been identified positive aspects of the development and the factors hindering increases in production in the food industry in Ukraine. Analysis, comparison and extrapolation international experience allowed identifying as a priority, innovative development of the food industry.

Empirically found that the problems of Ukraine's food industry are determined by the low level of institutional, investment, innovation, and staffing provision. Grounded potential areas of cooperation in the food industry, particularly in terms of specific cooperative forms of innovation (clusters, industrial parks and other similar structures) in the context of European integration of Ukraine.

The proposals regarding areas to further improve the functioning of the food industry in Ukraine in the

context of integrative cooperation between all involved participants are developed. As well as strengthening the position of Ukrainian producers of the food industry in foreign markets in key functional areas according to the Association Agreement between Ukraine and the EU.

Key words: Food Industry, Production, Export, Investment, Innovation, Cooperation, Integration.

1. Introduction

In modern conditions of the search for new ways out of the world crisis, special attention is paid to the development of industrial policy, one of the components of which is a strategically important food industry. For a long period of time it remains the most important and vital economic activity in the international arena, as well as a priority in ensuring food security of the state, the formation of the structure of export trade, the promotion of cooperation relations with other industries.

It is established that one of the leading places in the economic development of Ukraine is the food industry, providing the country's population with food products, through the production of competitive products and the supply of quality products of various assortment composition, increasing the efficiency of the innovative potential of the industry. It consists of var-

ious sub-sectors, the main of which are food production, beverage production and tobacco production. Sub-sectors of the food industry in Ukraine have historically been the case, depending on regional characteristics. The main factors of placement of the enterprises of the food industry are raw materials and the consumer, and also double orientation to raw materials and to the consumer (flour, meat, tobacco, etc.). No less important is the transport factor (shelf life of products and its transportability - non-transportability).

The development of the food industry is understood a set of quantitative and qualitative changes that occur under the influence of factors of the external and internal environment.

The criteria for the analysis and evaluation of economic activity and development of food, beverage and tobacco production in Ukraine is the analysis of the dynamics of such indicators as the total number of enterprises, the number of employees, the average monthly salary of one staff worker, productivity, volume of sales of food industry enterprises, etc.

The aim of the work is to study the current state, problems and prospects of the food industry, based on the synthesis of international experience, in particular in the EU, which must be taken into account in Ukraine in terms of European integration. Identification of priority areas and influential levers to increase the production capacity of the food industry on an innovative basis.

2. Materials and Methods

The data for the study were taken from official statistical sources of information, scientific and analytical sources, and features of the current state of the food industry development in Ukraine were established empirically. By means of statistical analysis (absolute and relative statistical values, sample, and series of dynamics) the assessment of the main indicators of production activity, dynamics and structure of export of food industry products was carried out. On the basis of the system and structural approach positive aspects of development and factors hindering the increase of domestic production capacity of the food industry were identified. Research, comparison and extrapolation of

international experience allowed us to determine the content of the priority directions of the food industry development on the basis of innovative aspects.

3. The main aspects of the food industry functioning on an innovative basis

3.1 Current state and problems of the food industry development in Ukraine

The food industry is one of the leading sectors of the national economy, which provides more than 8% of the country's GDP, sustainable food security of the state, the formation of its export potential, and also has a positive impact on the dynamics of social and economic growth of Ukraine.

The domestic food industry according the State Statistics Service of Ukraine in 2016 was represented by 5,198 companies (2012 - 5768 units), employing 315 thousand persons (2012 - 417,0 thousand persons), Table 1 [1 - 4]. As you can see, these indicators of economic activity of enterprises for the production of food, beverages and tobacco products in Ukraine for the analysed period decreased, and this indicates the presence of negative factors – the reduction of manufacturing enterprises and the growing unemployment rate.

Consumer total expenditures of Ukraine population in the last two years were 91.6% of total expenditures. The largest share in their structure was the cost of food and non-alcoholic beverages, including in 2016 they accounted for 54.1%. For comparison, in economically developed countries, up to 20% of all income is spent on food. If 50 - 60% of the income of the population is spent on food, it is considered poor, and accordingly the population belongs to the category of poor.

According to the State Statistics Service of Ukraine the average monthly nominal wage per staff worker of the food industry of Ukraine is in 2016 - 198.98 euro, whereas in 2012 - 95.02 euro. The low level of wages of workers in the sector indicates the discrepancy between current prices and the real incomes of the population, which consequently affects the moderating role of the growth rate of demand for products of the food industry. Despite this, the labour productivity in the food industry of Ukraine as of from 2012 to 2016 increased by 1.7 times.

Table 1. The main indicators of economic activity of enterprises producing food, beverages and tobacco products in Ukraine as of from 2012 to 2016

Indicators	Years				
	2012	2013	2014	2015	2016
Total number of enterprises, thousand	5,768	6,407	5,528	5,502	5,198
Number of employees, thousand persons	417,0	404,1	350,8	321,0	315,0
Average monthly nominal salary of one full-time employee, euro	95.02	101.97	110.82	137.18	198.98
Labour productivity, thousand euro for a year	20.01	21.23	27.72	39.84	32.41

Compiled by the authors [1 - 4; Euro converted according to the NBU rate as of 06.06.2018].

Table 2. The volume of sales of food, beverages and tobacco products in Ukraine in 2013 - 2016

Indicators	Years							
	2013		2014		2015		2016	
	million euro	% total						
Manufacture of food, beverages and tobacco products	8417,46	19,3	9723.18	21,2	12798.17	22,4	15055,60	21,6

Compiled by the authors [1 - 2; Euro converted according to the NBU rate as of 06.06.2018].

Table 3. Indices of production of food, beverages and tobacco products by types of activity in 2012-2016, percent till the previous year

Indicators	Years				
	2012	2013	2014	2015	2016
Food production	101.8	96.1	104.6	87.2	106.0
Production of meat and meat products	103.9	108.1	100.5	99.8	104.5
Processing and conservation of fish, crustaceans and molluscs	112.9	105	98.7	71.4	115.6
Processing and preservation of fruits and vegetables	105	99.7	102.9	74.6	100.2
Production of oil and animal fats	110.4	92.6	121.5	85.8	116.5
Dairy production	103.9	100.6	100.1	91.2	98.6
Production of products of the flour and grain industry, starches and starch products	104.5	95.2	100.6	94.6	100.7
Production of bread, bakery and flour products	99.9	96.4	89.5	86.9	97.7
Manufacture of other food products	93.7	85.7	110.8	79.0	111.5
Beverage industry	99	91.5	91.7	88.6	96.1
Distillation, rectification and mixing of alcoholic beverages	100.2	89.1	93.7	93.1	86
Production of grape wines	84.7	93.7	97.1	122.1	100.7
Production of soft drinks; production of mineral waters and other bottled waters	102	93	93.9	93.2	106
Production of tobacco products	98.5	91.8	104.5	108	104

Compiled by the authors [1 - 2, 4].

It should also be noted that the domestic food industry includes 22 specialised industries, which consist of more than 40 main industries. The leading Ukrainian manufacturers have established cooperative relations with manufacturers from: Austria, England, Denmark, Italy and the United States. In particular, a special place is given to the cooperation of the German company "HIPPI" with the enterprises of Zakarpattia and Ternopil regions, Kyiv and Uzhgorod in respect of the production of baby food; "BASF" - supply of pesticides and herbicides in exchange for molasses; company "KRONEC", "STEINEKER" constantly cooperate with the Ukrainian brewers, etc.

According to the State Statistics Service of Ukraine the volume of sales of food products, beverages and tobacco products is 21.6% (14812.77 million euro), (Table 2), [2-3]. The largest share is in the oil and fat industry (more than 20%), meat and meat products (13%), dairy products (11.9%) and beverages (14.6%).

The index of industrial production in the production of food, beverages and tobacco products in Ukraine

(information in the article is given without taking into account the temporarily occupied territory of the Crimea, Sevastopol and the part of the zone of the anti-terrorist operation) by the previous year amounted to 104.4% in 2016 (2012 - 101%, 2013 - 94.9%, 2014 - 102.5%, in 2015 - 89.3%) - see Table 3 [1, 4, and 5]. This slight increase in the index is due to an increase in the production of frozen poultry meat - 76.3%, white crystalline sugar - 56.1% and unrefined sunflower oil - 29.3%. Over the past few years, there has also been a slight increase in production (the city of Kyiv - 18.17%, the Vinnytsya region - 8.8%, Kyiv - 7.6%, Poltava - 7.45%, Dnipropetrovsk - 7.13%, Kharkiv - 6.2%, and the Cherkasy region - 6.1%) and for such categories as production: pork meat fresh or chilled - 15.3%, pig meat frozen - 14.2%, butter - 7.1%. The decline in production is most observed in such regions of Ukraine as the Rivne region (-7.1%), Volyn (-7.0%), Dnipropetrovsk (-5%), Zhytomyr (-2.7%), Kherson (-2.2%), and the Chernivtsi region (-1.1). Other regions of the country are characterised by positive dynamics of production. In the structure of the food industry there is an increase in

the volume of production of meat of frozen cattle - by 44.5%, and vice versa, a decrease in the volume of production is observed in such categories as: fatty cheeses - by 31.5%, bread and bakery products of non-durable storage - by 28.1%, wheat flour - by 24.4%, sausages - by 20.7%, yoghurts - by 19.5%, fresh non-fermented cheese - by 16.8%, liquid processed milk - by 4.7%.

Analysing the activity of the industry it should be noted that by 1998 in the food industry there were significant structural changes, the transition to market relations from the existing planning and command economy, the gap of established over years econom-

ic relations with other socialist countries, there was a denationalisation of enterprises and changes in ownership, production disproportion, the emergence of a significant number of small enterprises instead of large ones, hyperinflation, etc. Since 1999 there is a slow recovery of food industry sub-sectors (production of meat and dairy products, sugar, flour, and bakery products), which are becoming more competitive both in domestic and foreign markets - Table 4. Therefore, today it remains the most important task of social and economic policy of the state, especially in the conditions formed after the signing of the Association Agreement between Ukraine and the European Union.

Table 4. Dynamics of production of certain types of food and beverages in 2013 - 2016

Indicators	Years									
	2012		2013		2014		2015		2016	
	in 1,000 tons	per person kg								
Cattle meat, fresh or chilled	61.8	1.4	62.8	1.4	55.9	1.3	50.7	1.2	60.9	1.4
Meat of bovine animals, frozen	16.2	0.4	25.4	0.6	17.4	0.4	20.7	0.5	15.2	0.4
Pig meat, fresh or chilled	191	4.2	222	4.9	257	6.0	255	6	264	6.2
Frozen pig meat	13.3	0.3	10.6	0.2	14.5	0.3	15.7	0.4	12.2	0.3
Poultry meat, fresh or chilled	691	15.1	778	17.1	710	16.5	713	16.6	753	17.6
Poultry meat, frozen	75.5	1.7	139	3.1	159	3.7	181	4.2	248	5.8
Sausage products	294	6.5	294.2	6.5	267	6.2	236	5.5	238.9	5.6
Crude sunflower oil and its fractions (excluding chemically modified)	3,804	83.4	3,402.9	74.8	4,400.8	102	3,715.8	86.7	4,411.9	103
Milk processed liquid (pasteurized, sterilized, homogenised, melted, peptidemap)	912.0	20	972	21.4	1117	26	972	22.8	961	22.5
Butter	88.6	1.9	94.3	2.1	114	2.6	102	2.4	103	2.4
Fresh non-fermented cheese (unripened and young; including cheese from whey and cottage cheese)	79	1.7	83.7	1.8	74.7	1.7	67.8	1.6	70.1	1.6
Rennet and processed cheeses	168	3.7	165	3.6	130	3	124	2.9	113	2.6
Yoghurt and other fermented or soured milk and cream	489	10.7	522.3	11.5	472.8	11	426.2	9.9	426.4	10
Flour	2,605	-	2,564.8	-	2,357.8	-	2,211.2	-	2,085	-
Cereals	365	-	367	-	350	-	358	-	373	-

Compiled by the authors [1 - 4].

For a long time the development of the food industry is hampered by the low level of material and technical base of enterprises. The degree of depreciation of fixed assets in domestic enterprises engaged in the production of food, beverages and tobacco products in 2016 amounted to 51.1% (2012 - 47.2%, in 2013 - 48.5%, 2014 - 47.2%, in 2015 - 47.5%) - see Table 5 [6 - 9]. In the structure of production of food, beverages and tobacco products according to the State Statistics Service of Ukraine in 2016 the greatest degree of assets depreciation in manufacturing companies in the region had enterprises for the production of beverages - 61.1%

(2013 - 55.1%, 2014 - 62.5%, 2015 - 63.1%) and food production - 48.9 % (2013 - 47%, 2014 - 42.1%, 2015 - 42.5%) and the smallest degree of depreciation of the enterprises producing tobacco products is 38.7% (2013 - 36.3 %, 2014 - 39.3%, 2015 - 40.7%) [6 - 9].

One of the main directions of the exit of the food industry from the crisis, stabilization and acceleration of the development is the peculiarities of attracting direct investment. In recent years, their volume has increased slightly, reaching in 2016 the figure of 2022.32 million euros (2012 - 1866.60 million EURO) [10].

Table 5. Fixed assets in the production of food, beverages and tobacco products in Ukraine as of from 2012 to 2016

Indicators	Industry	Processing industry	Food, beverage and tobacco production	including		
				Production of food products	Production of beverages	Production of tobacco products
2012						
The cost of fixed assets at the beginning of 2012, thousand EURO.				Production of food products + beverages (only for 2012)		Production of tobacco products
- without indexation and revaluation	35896066.33	20725606.21	3019081.96	2888731.90		130350.06
- taking into account indexation and revaluation	49438985.02	20971732.73	3103134.21	2972784.15		130350.06
Received fixed assets, thousand euro	3311813.83	1727691.86	405950.00	388458.33		17491.67
- from them new fixed assets put into operation, thousand EURO	2102416.85	1045705.24	289510.84	272612.60		16898.23
Withdrawn fixed assets, thousand euro	1186611.16	902634.21	112805.27	103033.89		9771.38
- of them liquidated fixed assets, thousand euro	277063.34	192853.76	31522.89	27598.30		4261.19
The cost of fixed assets at the end of 2012, thousand euro/% of total volume	52200836.47/17.5	22065909.34/7.4	3438211.86/1.2	3298436.79/1.1		139775.07/0
Depreciation of fixed assets for the year, thousand euro	1864008.04	994482.03	200745.05	191953.92		8791.13
The cost of fixed assets, which are fully accrued depreciation, thousand euro	1850857.75	955586.62	196113.02	188430.32		7682.70
Depreciation of fixed assets, %	57.3	57.2	47.2	47.6		37.7
2013						
The cost of fixed assets at the beginning of 2013, thousand euro				Production of food products	Production of beverages	Production of tobacco products
- without indexation and revaluation	49416229.00	18422657.68	3398732.54	2384417.88	876971.00	137343.67
- taking into account indexation and revaluation	54145742.67	18702780.48	3448392.41	2425328.55	885720.19	137343.67
Received fixed assets, thousand euro	3571967.07	1718844.63	132291.25	341383.83	83719.54	30346.46
- from them new fixed assets put into operation, thousand euro	2157654.47	1084355.76	302564.86	221679.32	56059.87	24825.66

Indicators	Industry	Processing industry	Food, beverage and tobacco production	including		
				Production of food products	Production of beverages	Production of tobacco products
Withdrawn fixed assets, thousand euro	1476244.82	1129675.76	147385.59	112307.56	31113.70	3964.34
- from them liquidated fixed assets, thousand euro	229178.36	130769.71	32450.64	20354.31	10864.63	1231.70
Cost of fixed assets at the end of 2013, thousand euro/% of total volume	56935862.76/16.8	19530141.73/5.8	3801201.47/1.1	2687178.03/0.8	948276.18/0.3	165747.26/0
Depreciation of fixed assets for the year, thousand euro	2111994.24	1003848.81	234068.33	161909.32	61666.37	10492.64
Cost of fixed assets, which are fully accrued depreciation, thousand euro	2150740.13	1106650.19	244934.66	142909.49	92798.01	9227.17
Depreciation of fixed assets, %	56.9	50.1	48.5	47	55.1	36.3
2014						
Cost of fixed assets at the beginning of 2014, thousand euro				Production of food products	Production of beverages	Production of tobacco products
- without indexation and revaluation	53964745.63	17344597.78	3540076.75	2492327.85	884158.87	163590.03
- taking into account indexation and revaluation	61175827.33	23749098.17	3744045.43	2565084.79	1015370.61	163590.03
Received fixed assets, thousand euro	2771496.95	1258366.21	466602.28	377583.12	69369.90	19649.26
- from them new fixed assets put into operation, thousand euro	1662467.07	731613.15	271918.20	207143.22	48449.23	16325.76
Withdrawn fixed assets, thousand euro	1637962.28	689868.71	167392.64	127277.30	36369.58	3745.76
- from them liquidated fixed assets, thousand euro	771325.34	272947.20	16328.42	9577.46	5430.42	1320.55
Cost of fixed assets at the end of 2014, thousand euro/% of total volume	63078678.48/14	24617838.30/5.5	4093176.03/0.9	2850151.46/0.6	1061314.88/0.3	181709.69/0
Depreciation of fixed assets for the year, thousand euro	2489191.16	983028.30	233518.81	15693.31	63864.57	12713.34
Cost of fixed assets, which are fully accrued depreciation, thousand euro	2360753.34	1275090.19	335432.32	213326.08	110136.21	11970.03
Depreciation of fixed assets, %	60.3	56.9	47.2	42.1	62.5	39.3
2015						
Cost of fixed assets at the beginning of 2015, thousand euro				Production of food products	Production of beverages	Production of tobacco products
- without indexation and revaluation	62836057.30	25785264.66	3814901.80	2716191.54	927450.80	171259.45

Indicators	Industry	Processing industry	Food, beverage and tobacco production	including		
				Production of food products	Production of beverages	Production of tobacco products
- taking into account indexation and revaluation	122417170.55	52403720.16	4160630.00	2955768.04	1033602.51	171259.45
Received fixed assets, thousand euro	3335500.48	1867409.65	610764.18	514935.14	65243.44	30585.59
- from them new fixed assets put into operation, thousand euro	1798401.77	1097047.20	472019.87	415997.49	31192.83	24829.55
Withdrawn fixed assets, thousand euro	2199072.89	992307.30	391921.96	358088.75	29073.25	4759.97
- from them liquidated fixed assets, thousand euro	294814.57	98062.77	16163.99	8490.61	5930.74	1742.64
Cost of fixed assets at the end of 2015, thousand euro/% of total volume	125079080.29/50.3	53936641.42/21.7	4433544.35/1.8	3151045.03/1.3	1082980.89/0.4	199518.44/0.1
Depreciation of fixed assets for the year, thousand euro	2597670.64	1222030.84	262749.49	182388.01	66700.32	13661.16
Cost of fixed assets, which are fully accrued depreciation, thousand euro	2666676.59	1531685.28	311319.68	164516.37	130029.20	16774.12
Depreciation of fixed assets, %	76.9	75.8	47.5	42.5	63.1	40.7
2016						
Cost of fixed assets at the beginning of 2016, thousand euro				Production of food products	Production of beverages	Production of tobacco products
- without indexation and revaluation	123876128.55	53355026.43	4657782.54	3434817.91	1025895.69	6128844
- taking into account indexation and revaluation	96253321.16	561081723.70	4929632.57	3659322.86	1073240.77	197068.94
Received fixed assets, thousand euro	3623331.80	2081471.35	615715.63	457708.55	110396.17	47610.90
- from them new fixed assets put into operation, thousand euro	2137887.78	1242803.34	382967.65	274478.84	71655.92	36832.89
Withdrawn fixed assets, thousand euro	1067849.61	716204.92	272169.10	226661.58	39331.83	6175.69
- from them liquidated fixed assets, thousand euro	249314.82	140589.39	24096.78	14164.28	7743.44	2189.07
Cost of fixed assets at the end of 2016, thousand euro/% of total volume	100028768.35/37.6	58335304.63/21.9	5338285.59/2	3938403.16/1.5	1158433.53/0.4	241448.89/0.1
Depreciation of fixed assets for the year, thousand euro	2918291.86	1419377.88	266082.12	194651.09	55321.00	16110.03
Cost of fixed assets, which are fully accrued depreciation, thousand euro	3018409.65	1745332.99	365135.50	183050.10	163910.51	18174.89
Depreciation of fixed assets, %	69.4	76.4	51.1	48.9	61.1	38.7

Compiled by the authors [6 - 9; Euro converted according to the NBU rate as of 06.06.2018].

The structure of foreign direct investment in Ukraine is dominated by investments of companies that are registered in the Netherlands. At the beginning of 2016, according to the State Statistics Service of Ukraine, their share was 25.6% of the total amount of foreign direct investment in the food industry. In addition, it should be noted that significant is the volume of investments in Ukraine from companies registered within Cyprus - 23.8%.

The leading place in the structure of Ukrainian exports of Ukraine is occupied by the food industry - 42% in total. The dynamics of the foreign trade balance of food products remains positive – 9525.53 million EURO that is 1.3 times more than in 2013 [2 - 4].

It should be noted that in 2015 Ukraine exported 12.7% food products less than in 2014, this is due to a military and political and economic crisis in the country. However, in 2016 the situation improved, the value of exports increased by 4.9% against the previous year, reaching the level of 12777.62 million euros. Supply to the EU countries decreased by 30%. This is due to the fact that the vast majority of domestic production does not meet the requirements of the European community to the production technology and quality of products. At the same time, the prospects of increasing exports to China, Egypt and other Asian and African countries are opening up. Some domestic companies have such positive experience, in particular, enterprises of tobacco, brewing, oil and fat, confectionery industries and production of soft drinks. Their high competitive positions are provided by the use of modern equipment, the development of innovative technologies, the introduction of modern methods of organization, production management, as well as the presence of effective development strategies based on the formation of integrated structures.

So, having performed the analysis of modern tendencies of the food industry functioning in Ukraine, in addition to the described problems, we should also add: the rising price of food of the first necessity; the reduction in purchasing power of the population; dependence on imports of raw materials, in particular of commodity groups such as milk, fish, cereals; the growth of prices and tariffs for the major cost components food industry products (gas, energy); lack of government programmes to promote the development of enterprises of food industry and public financial support, etc.

3.2 Innovative bases of the food industry development in the context of European integration of Ukraine

Innovation activity in food industry of Ukraine is described as unstable, with a lack of balance of financial sources and a lack of clearly identified development

priorities (Yermak, [11]). The dominant trend in the modern development of enterprises and sectors of the food industry is the introduction of advanced science and technological developments. This is evidenced by the increasing trend of industrial enterprises as of from 2005 to 2012. However, the next few years formed the situation of decreased indicators. Thus, in particular in 2016, out of 3,525 enterprises of the processing industry of Ukraine, only 901 enterprises worked in the production of food, beverages and tobacco products (or 25.6% of the total number of industrial products in Ukraine). Among them, only 170 enterprises or 18.9% of the total number of industrial enterprises in the production of food, beverages and tobacco products in Ukraine, Table 6 [12 - 16]. If we compare this figure in the European Union it is about 53% (from 27.1% in Bulgaria to 79.3% in Germany). This indicates that the food industry of Ukraine has a low level of innovation activity.

According to the State Statistics Service of Ukraine, a similar dynamics of total costs in the areas of innovation was found in the production of food, beverages and tobacco products. There were spent 714,754,098.36 million euro, including the purchase of machinery, equipment and software - 65,102,683.21 million euro (128 innovation active enterprises engaged in the production of food, beverages and tobacco products). Other relevant activities (other expenditures) are: 0.2 million euro, for internal research and development - 0.01 million euro and external research and development - 0.001 million euro, for the acquisition of existing knowledge from other enterprises or organizations - 0.002 million euro.

The total amount of financing of innovative activities in the production of food, beverages and tobacco products in recent years has increased by 1.4 times, reaching in 2016 the figure of 71172.96 thousand euro. The main source of financing innovation expenditures in 2016 are own funds of food industry enterprises - 56,959.68 thousand euro (or 81% of total financing of innovation in the food industry). The state budget has not been allocated, but the share of local budgets is only 0.3% [10, 12 - 16].

In 2016, 154 units (or 16.6% of the surveyed industrial) of innovative industrial food industry enterprises of Ukraine (2012 - 164 units) introduced 275 (2012 - 268 units) new technological processes (Table 6), including low-waste, resource-saving that make 96 units (2012 - 74 units.) [10, 12 - 16]. The first the indicator on the proportion of innovation-active enterprises in the food production is significantly higher not only for the countries-leaders in the implementation of technological processes, but also in other countries of Eastern Europe, the countries of the "BRIC" - Germany (69,7%), Austria (53%), Turkey (35.3%), Lithuania (26,8%) and Bulgaria (23,8%) (Minina *et al.*, [17]).

Table 6. Key indicators of innovation activity in the production of food, beverages and tobacco products in Ukraine as of from 2012 to 2016

Indicators	Years				
	2012	2013	2014	2015	2016
Number of industrial enterprises in the areas of innovation in the production sphere of food, beverages and tobacco products in Ukraine, units					
Total	2,243	2,158	1,990	984	901
Including those engaged in innovative activities	420	398	334	178	170
Of them spent money on:					
- internal research	17	17	15	13	19
- external research	11	12	8	7	11
- purchase of machines, equipment and software	235	231	203	92	128
- other external knowledge	20	16	15	6	14
- other issues	37	31	19	45	93
- staff training	71	79	81	-	-
- market introduction of innovations	25	23	16	-	-
Total amount of expenses in the areas of innovation in the production of food, beverages and tobacco products in Ukraine, thousand euros					
Total	50,362.51	54,684.73	69,890.96	49,526.40	70,304.92
Including:					
- internal research	717.23	2650.74	5061.70	2663.02	352.83
- external research	158.46	522.28	114.31	112.54	39.04
- purchase of machines, equipment and software	39,719.87	48,176.72	60,223.54	42,715.11	63,594.60
- other external knowledge	36.53	66.72	23.79	37.65	-
- acquisition of existing knowledge from other enterprises or organizations	-	-	-	-	57.91
- other issues	9,730.35	3,268.20	4,467.59	3,998.04	6,260.48
Number of industrial enterprises in the production of food, beverages and tobacco products in Ukraine, which introduced innovations, units					
Total	348	321	265	165	154
Including:					
- introduced innovative process	164	139	113	80	110
- of them low-waste, resource-saving	-	-	-	23	41
- of them introduced new or improved methods of processing or production	144	115	91	-	-
- introduced innovative products	175	173	134	93	115
- of them new to the market	18	25	24	18	32

Compiled by the authors [10, 12 - 16; Euro converted according to the NBU rate as of 06.06.2018].

Analyzing the statistical data of the State Statistics Service of Ukraine it should be noted that there is a trend of growth of the number of innovative products names introduced in industrial enterprises of the food industry, starting from 2012 to 2016. So, in 2016, the indicator was 885 units (2012 - 667 units). The growth is observed also for indicators in categories: of them new to the market - 191 units (2012 - 71 units), including machinery, equipment, devices - 37 (2012 - 5), of them new to the market - 17 units [10, 12].

There has significantly decreased the number of food industry enterprises that sold industrial products from

2,243 units (2012) to 984 units (2016), as well as the number of enterprises that sold innovative products - from 281 units (2012) to 144 units (2016), the total volume of which in 2012 amounted to 2.5% of the total volume of industrial products sold (or 148,369.61 thousand euro) [10, 12]. Of the total volume of innovative products sold, 33.9% were products that were new to the market and 66.1% were products that were new only for the enterprise. The downward trend is associated with a decrease in consumer demand, and demand for industrial products, due to the financial and economic crisis. The main part of innovative products

was sold on the territory of Ukraine, and only 15% of innovative products of the food industry were exported in 2015.

Thus, the analysis of statistical data on the development of innovative activities of food industry enterprises shows that despite the positive dynamics, Ukraine is significantly behind the indicators of developed countries (minimum - Portugal (26%), Greece (29%), maximum - Ireland (74%), the Netherlands (62%). Effective development of the industry is possible with the growth of the share of enterprises that implement innovations (up to 40 - 45%), as well as through the creation and development of organizational forms of innovation, among which cross-border industrial parks and clusters occupy an important place.

European integration processes and attempts of Ukrainian producers to enter new markets determined the process of implementation in practice of enterprises management principles and tools of quality management set by international standards of series ISO 9000 (Bavyko A., [18]).

Under the institutional and legal support of relations in the field of cross-border cooperation it is proposed to understand the relationship between various entities and state/local authorities, which are formed in the process of their organisation and operation, which are provided by the action of legal regulation. Such regulation should be carried out on the basis of maximum coordination of interests of the state, region and business.

Institutional and legal support for the development of cross-border cooperation of Ukraine with neighboring countries is represented by: common European normative documents relating to the functioning and development of regions ("European Charter of local self-government" (1985), "Charter of the Congress of local and regional authorities of Europe"(1994), "European Charter of regional spatial planning" (1983), etc.; European legislation in the field of cross-border cooperation ("European framework Convention on cross-border cooperation between territorial communities"(1980) and protocols to it; European instruments on regulation of transboundary cooperation ("Kyoto Convention on simplification and harmonization of customs procedures" (1999), "Convention on combined transportation", "European Charter for regional and minority languages" (1992), etc.; national legislation of European countries, etc. Among them, the document, which defines the objectives of the state policy in the field of cross - border cooperation, the principles and forms of state support, the peculiarities of financial support, the powers of the subjects of cross-border cooperation of Ukraine-the Law of Ukraine "Cross-border cooperation" (2004), is of significant importance. In this Law cross-border cooperation is defined as

"a joint action aimed at establishing and deepening economic, social, technological, environmental, cultural and other relations between territorial communities, their representative bodies, local executive authorities of Ukraine and territorial communities, the relevant authorities of other States within the competence defined by their national legislation".

The purpose of cross-border cooperation in the innovative activities of the food industry should be considered the development of social and economic, scientific and technical, environmental, cultural and other relations between the subjects and participants of cross-border cooperation.

Article 5 of the Law of Ukraine "Cross-border cooperation" states that cross-border cooperation can be carried out: within the created Euro region; on the basis of making agreements on cross-border cooperation in certain areas of economic activity; by establishing contacts between the subjects of cross-border cooperation on mutually beneficial terms. In some regions of the country, due to the military aggression of Russia and the partial occupation by Russian troops of the territory of South-Eastern Ukraine, local self-government is regulated by the Law of Ukraine "on the special order of local self-government in certain regions of Donetsk and Luhansk regions" (2014).

In 2014 Ukraine and the European Union signed an Association Agreement. The main directions and tasks of the state policy for stimulating the development of industrial parks which provide application of a complex of actions are defined, namely: harmonization of normative legal base in the sphere of creation and development of industrial parks according to the European model; legislative provision of the mechanism of creation of cross-border industrial parks; during the implementation of the decentralisation reform the influence and responsibility of local authorities regarding the creation and development of industrial parks should increase; the implementation of an effective policy for the development of industrial parks, which is possible in the context of a set of measures to significantly improve the investment climate of the region; the development of models for the use of the mechanism of public-private partnership to attract non-state investment resources for the development of industrial parks, especially with regard to the management organisation, and the infrastructure; elaboration of the mechanism of attracting funds from international donors and credit resources for the infrastructure of industrial parks; development of small and medium-sized businesses (SMEs), by expanding state support for entrepreneurial initiatives through the creation of favourable conditions for business development, increasing awareness of entrepreneurs, facilitating access to support programs for enterprises engaged in production and commercial activities, etc;

development of the state program of organisation and financial stimulation of industrial parks, implementation of programs to facilitate the entry of enterprises of the industrial Park to foreign markets, joint marketing research; creation and implementation of training programs, including through the adjustment of curricula, activities of vocational education institutions, joint organisation of retraining and advanced training programs; strengthening the role of social responsibility of business.

In the direction of the implementation of regional policy for the development of cross-border cooperation, the Cabinet of Ministers of Ukraine has adopted the "State program for the development of cross-border cooperation for 2016 - 2020" (2016). "State strategy for regional development of Ukraine for the period up to 2020" (2014) is also in force, and it defines the main tasks, barriers and ways to overcome them.

Ukraine has a common border with the: Republic of Belarus, the Slovak Republic, Romania, Hungary, Poland, the Russian Federation, and the Republic of Moldova. This is the so-called border area, and one should understand it as an administrative and territorial unit of a different level, located directly near the state border".

The border territories of Ukraine are divided into cross-border regions - "territories that cover adjacent border regions of two or more neighbouring countries where cross-border cooperation is implemented" [19]. In Ukraine there are several types of cross-border

regions, which consist of border areas, in particular: with the participation of the regions of the new EU member States; with the participation of the regions of the CIS countries; marine cross-border region. Some features of the development of cross-border regions of Ukraine are given in Table 7.

According to the current regulatory legislation of Ukraine, in particular the Law of Ukraine "Industrial parks" (2013), the concept of cross-border industrial park (CBIP) should be understood as "industrial park", which is created and operates on the basis of an international treaty of Ukraine, which is concluded between the governments of states or their authorised initiators. The order of creation and functioning of industrial parks is regulated by international agreements of Ukraine. The purpose of the CBIP is to create conditions for improving the efficiency of SMEs.

The most famous in the modern world are the cross-border industrial parks in Europe, among which important are: the service center "Eurode Deinst-lustung-szentrum" (Federal Republic of Germany, the Kingdom of the Netherlands); European Park of science and business "Avan-Tis" (Federal Republic of Germany, the Dutch Kingdom); cross-border industrial Park "Businesspark Heiligenkreuz-Szentgotthard" (Kingdom of Hungary, the Republic of Austria, the Republic of Slovenia); industrial park "Access" (the Republic of Austria, the Czech Republic); cross-border industrial park "Gmünde-Czech Velenice" (the Austrian Republic, the Czech Republic), (Table 8), etc.

Table 7. Peculiarities of developing cross-border regions of Ukraine

Name of the cross-border region	Regions of Ukraine	Regions of EU member states/ CIS countries	General information
Ukrainian-Belarusian	Volyn, Rivne, Zhytomyr, Rivne and Chernihiv regions	Brest and Gomel regions of the Republic of Belarus.	Distance - 975.2 km, including river - 325.9 km
Ukrainian-Moldovan	Chernivtsi, Vinnytsya and Odesa regions	Districts (Edinets, Soroca, Tighin, Lapusna, Cahul) and Autonomous formations (the Transnistrian Republic, Gagauzia) in Moldova	Distance - 1,222 km, including river - 267.0 km, Transnistria - 452 km
Ukrainian-Polish	Zakarpattya, Volyn, Lviv regions	Subcarpathian Voivodeship of the Republic of Poland	Distance - 542 km, including river - 187.3 km
Ukrainian-Russian	Donetsk, Luhansk, Kharkiv, Chernihiv, Sumy regions	Bryansk, Kursk, Belgorod, Voronezh and Rostov regions of the Russian Federation	Distance - 2,295.04 km, including land - 29,221,974.04 km and sea - 321 km
Ukrainian-Romanian	Zakarpattya, Ivano-Frankivsk, Chernivtsi and Odesa regions	Counties (Jodeci) Republic of Romania (Satu-Mare, Maramures, Suceava, Botosani, Tulcea)	Distance - 613.8 km, including river - 292.2 km and sea - 33 km
Ukrainian-Slovak	Zakarpattya region	Košice, Prešov region in the Slovak Republic	Distance - 97,852 km, including river - 2.3 km
Ukrainian-Hungarian	Zakarpattya region	Regions (medje) of Hungary (Szabolcs-szatmár-Bereg, Borsod-abaúj-zemplén)	Distance - 136.7 km, including river - 85.1 km

Compiled by the authors [19 - 27].

Analyzing the data on the world experience of cross-border industrial parks, we can note the following: the purpose of the CBIP in different countries are determined by the priority of the tasks facing a country or region; the characteristic features in the creation and development of CBIP are: location near the settlement; proximity of raw materials and material resources; presence of developed infrastructure; land, on which the CBIP is located, is defined legally and outlined; presence of highly qualified specialists; professional and effective system of organisation of access roads, parking spaces for trucks and cars, loading/unloading areas, control and throughput zone; focus on the growth of exports, etc.; depending on the type of services provided to residents, there are several types of CBIP: Greenfield-park (offers residents some undeveloped land (purchase and / or rent) for the construction of production, can provide construction services at the request of the customer - built-to-suit); Brownfield-park (offers residents purchase and/ or lease of the industrial park of existing ready-made production, storage, administrative facilities, buildings and infrastructure facilities, reconstruction and/ or major repairs); Complex park (the park the sites of which do not fully meet the mandatory features of the industrial park); Industrial Park offers a unique value for residents, has clear production (production-

oriented), technological (focused on scientific and technical research and technology development) priorities related to the historical development of the territory; the CBIP can be created by the state, municipality or a private company. There are various programmes for the establishment of cross-border industrial parks, the main characteristics of which are illustrated by the example of Austria (Table 9); CBIPs have several ownership models: public ownership and management of CBIP; private ownership and management of CBIP; public-private partnership or joint ventures that are created between the public and private sector within the CBIP; the developer (management company) is engaged in the search and attraction of investors from among the largest international and domestic corporations, independent specialised companies, etc. The developer carries out such functions as: providing consulting services, in particular advice on international and state law, methodology of accounting and application of regulations in industrial and commercial activities, safety; provision for the use of production and non-production assets; provision of electricity, gas, water, as well as the allocation of issues of development of the digital economy; removal, cleaning and disposal of sewage; provision of transportation routes, loading/unloading services, etc.

Table 8. International experience in the functioning of cross-border industrial parks

Name of cross-border industrial park	Participating countries	Peculiarities of the development of the cross-border industrial park
Cross-border industrial park "Businesspark Heiligenkreuz-Szentgotthard"	Republic Of Hungary, Republic Of Austria, Republic of Slovenia.	The total area of the cross-border industrial park (CBIP) is 184 ha. The cross-border industrial park (CBIP) was established in 1997. Since 1995 the activities are supported by the "Phare CBC INTERREG" programme. The partnership fund of capital of the CBIP is 200 000 000 forints. Owners of CBIP are "WIB Infrastructur AG" (89.5%), Burgenland (Austria); local administration of the city of Szentgotthárd (8.4%), the city of Szentgotthárd (Hungary); TESCO (0.7%), Budapest (Hungary). The activities of CBIP are provided by "Szentgotthard Industrial Park, Economic Development and Investment Ltd." Participants of the CBIP are 49 companies. CBIP offers services: complex logistics services, customs clearance, real estate sale, leasing, legal and financial consulting, accounting, food trade, training, advertising and marketing, consulting (legal, financial, accounting), etc.
Cross-border industrial park "Access"	Republic of Austria, Czech Republic.	The cross-border industrial park "ACCES" is considered the first European cross-border business park with a complex incubator, service center. CBIP offers the following services: access to two labour markets, sales and procurement, the possibility of cross-border production flows on the basis of simplified processing, the availability of highly qualified specialists, a wide range of consulting services, legal security, etc.
Cross-border industrial park "Gmund-Czech Velenice"	Republic Of Austria, Czech Republic	The total area of the cross-border industrial park (CIBP) is 83 ha, of which 33 ha are in the Austrian part and 50 ha are in the Czech part. The entities with the Austrian side started its activities in 1993, and Czech - in 1994 Management of the Austrian part of CIBP is realized by "ACCESS Industrial Park Austria Co." (The government of Lower Austria), and in the Czech part by the limited liability company "Hospodarsky Ltd." The shares are distributed as follows: 65% - the government of Lower Austria, 35% - the municipality of Czech-Velenice. The volume of attracted investments is 50 million euros. The participants of CIBP are 33 companies (13 Austrian and 20 Czech). 800 new jobs have been created (200 in the Austrian and 600 in the Czech parts of the Park).

Compiled by the authors [28 - 34].

Table 9. Programmes to support the development of cross-border industrial parks in the Republic of Austria

Country	Type of programme	Peculiarities of supporting innovation activity within CBIP
Austrian Republic	Government	<ul style="list-style-type: none"> - Availability of funds, whose activities are financed from the state budget subordinated to the Ministry of transport, innovation and technology involved in the implementation of government programs to support innovation: Foundation for the promotion of research in industry (promotion of research and technological development of applied character); Foundation for the promotion of research (support of fundamental science); Foundation for innovation and technology (the structural support for the creation and development of innovative enterprises in priority areas of science and technology). - Financing within the programme is based on allocated shares at the expense of: enterprises (at least 51%), state (not more than 35%), raising investment or Bank loans in the idea of the project. There are two banks under the Ministry of industry and labour of the Republic of Austria (about 13.5% of the funds are allocated for research programs that perform the function of public insurance of private investment in certain innovative projects) authorised for lending. - The venture financing system is linked to the activities of the state venture company "Austria Wirtschaftservice GmbH." Its task is to activate venture financing of innovative projects in combination with the funds of state support programs and create attractive conditions for attracting extra-budgetary funds.

Compiled by the authors [27, 28, and 34].

The current situation in the field of creation and activities of cross-border industrial parks in Ukraine is characterised by a number of problems that require their solutions, in particular: the imperfection of legal relations in terms of regulation of the use of land plots of state and municipal property, on which there can be created cross-border industrial parks (in terms of the use of exclusively land lease agreements); lack of a clearly established list of activities that are appropriate to implement in the framework of cross-border industrial parks. This situation may lead to the fact that existing enterprises (outside the cross-border industrial parks) in order to obtain the preferences established by the legislation will be interested to transfer their production to the border industrial parks without introducing new types of production; imperfection of the norms of the current legislation, in particular, in determining the optimal forms of stimulating investment required for the construction of cross-border industrial parks through exemption from payment of import duties on equipment and components to it.

Despite the existing problems, the first attempts to create cross-border industrial parks are observed between Ukraine (the Zakarpattya region) and the Republic of Hungary, the concept of which is reflected in the "Technical and economic study on the creation of a joint Ukrainian-Hungarian industrial park" (Table 10).

In order to further create and develop cross-border industrial parks in Ukraine, it is necessary to carry out activities that are able to coordinate the work of government, science, education and business. In particular this concerns the following issues: improvement of the legal framework on cross-border cooperation and operation of cross-border industrial parks; organisation of training for representatives of major groups

(preparation of textbooks and manuals on the operation of cross-border industrial parks; introduction of training courses, modules in higher education institutions, training and retraining centres; formation of groups of mentors on the creation and development of industrial parks); creation of a network of organizations at the international and national levels, which are engaged in the operation of cross-border cooperation, including in the development of cross-border industrial parks; training and retraining project managers on the identification of cross-border industrial initiatives, in particular in the direction of the operation of cross-border industrial parks of the food industry; development of methodological recommendations on the establishment and development of cross-border industrial parks, in particular on the identification of cross-border initiatives of the functioning of cross-border industrial parks; support mechanisms and tools for the development of cross-border industrial parks; statistical reporting on the operation of cross-border industrial parks; development of proposals on the organisation of cross-border trade in goods produced by enterprises of cross-border industrial parks; synthesis and implementation of international experience in the creation and development of cross-border industrial parks; creation at the national and regional levels of a permanent body on the introduction of cross-border industrial parks; creation of a website and a national database on the operation of cross-border industrial parks; development of "Strategy of operation of cross-border industrial parks" and "Concept of joint development of the cross-border region"; preparation of a regional road map towards the implementation of "Strategy of operation of cross-border industrial parks"; improvement of the mechanism of financing of cross-border cooperation projects in the field of creation and development of cross-border industrial parks, etc.

Table 10. Peculiarities of potential development of cross-border industrial parks of Ukraine

Name of cross-border industrial park	Location of cross-border industrial park	General information on the cross-border industrial park	Directions of operation of the cross-border industrial park
"Dyida"	Between the settlements of Beregdyida (Dyida) and Beregdaroc of Beregov district	The advantage is that the M3 motorway passes through the border, and the industrial railway track can be built from the Batevo-Beregov railway line	- Activities of the processing industry sector (pre-treatment or production of finished parts on the "just-in-time" system; production of valuable raw materials from minerals; processing of valuable natural substances for the pharmaceutical and food industry) - High-level logistics services with border crossing and customs clearance
"Usca"	Between the settlements Usca and Tycapeterfalva (Petrovo) near the checkpoint Tiszabecs-Ticauiloc (Viloc)	Transport connection can be on both sides. The disadvantage is the fact that the railway will be located at a distance of 4 km from the station Viloc	
"Solovka"	The territory of settlements Tizzaszentmarto and Solovka separated by the river Tisza	It is necessary to expand the railway bridge between settlements Tozer and Batevo, creating opportunities for the movement of vehicles and pedestrians	

Compiled by the authors [27, 29, and 36].

Cross-border cooperation is aimed at strengthening good-neighbourly relations and creating conditions for closer coordination of actions in the field of integration of the economies of neighbouring countries. This is achieved, in particular, through the formation of cross-border clusters, which are an innovative element and a driving force for the sustainable development of cross-border regions.

Cross-border clusters on the world stage are geographically located unevenly. Their concentration is observed on the territory of: Austria, Great Britain, Italy, Germany, Hungary, France, Switzerland, etc. In particular, the well-known cluster of the food industry (Italy - Romania) and others. In Ukraine, clusters were created in: Zhytomyr, Zakarpattia, Ivano-Frankivsk, Lviv, Mykolaiv, Odesa, Poltava, Rivne, Sumy, Kharkiv, Kherson, Khmelnytsky, and other regions. The feature of cross-border clusters in the food industry of EU countries is that they are created and developed in the following directions: the formation of clusters, involving enterprises of two or more countries, which include specialised companies, research centres, educational institutions from two or more countries; creating cross-border clusters, which are formed directly in the border territories of neighbouring states; the formation of a globalised clusters that operate on the basis of one or more multinational companies that form the core of the cluster.

A cross-border cluster is a "voluntary association of independent companies, associated organizations, other cross-border cooperation entities that: are geographically concentrated in a cross-border region (space); cooperate and compete; specialise in different industries, share common technologies and skills, complement each other for the production of a joint product or service, which ultimately provides an opportunity to obtain synergies and network effects, diffusion of knowledge and skills" [27, 36, and 37].

The purpose of cross-border clusters should be considered: increasing the competitiveness of participants in the cross-border cluster through the introduction of new technologies; reducing costs and improving the quality of knowledge-based services, the introduction of a synergetic effect and the unification of approaches in quality, logistics, engineering, etc; employment in the context of reforming large enterprises and outsourcing; consolidated lobbying of interests of cluster members, etc.

The functional purpose of cross-border clusters in the food industry, according to the foreign and domestic experience depends on many factors, the most significant of which are: geographic concentration (nearby companies, which allows you to save money on fast production interaction, exchange of social capital and joint learning processes); specialisation (concentration of clusters around certain spheres of activity, to which all members are related) of clusters of the food industry in: Belgium, Italy, the Netherlands, Finland and France; a significant number of economic agents (activities include not only cluster members, but also public organizations, institutions, banks, etc.); competition and cooperation (interaction between cluster members); the viability of the cluster (long-term operation period); involvement in the innovation process (technology, process, market, organisational and other types of innovation) etc.

The cluster policy of the European Union countries is based on the implementation of national clustering development programs. This is evidenced by the fact that in the 90-ies of the last century, the United Nations of industrial development (UNIDO) has prepared a set of recommendations for the cooperation of European governments and the European private sector in the development and implementation of clusters development programs and networks of small businesses.

Table 11. World experience in development of special programs of clusters functioning

Country	Programs that contribute to the development of clusters
Austria	There has been developed the national innovation and research program "CBIP", through which the policy of stimulating the development of relations between research institutions and the industrial sector, reduction of regulatory barriers in innovation programs, specialisation of clusters and the formation of centres of competitiveness is realised.
Bulgaria	The country has a program "PHARE", due to which there were first formed industrial clusters: woodworking and furniture production (Razlogi); perfumery, cosmetics and essential oils (Plovdiv); wine cluster (Resi); furniture production (Trojan); tourist services (Rhodopakh); ICT (Sofia); "Marine cluster of Bulgaria" (Varna); power constructions (Varna); travel and tourism (Varna), etc.
Denmark	Danish company "REG X-The Danis Cluster Academy" (operator of the state cluster program) implements 2 programs: training of cluster managers (training modules, including cluster strategy, international promotion of the cluster, creating communications in the cluster, etc.); implementation of modern innovation policy and innovation programs.
Estonia	An example is the state "Innovation strategy of science and development and innovation of Estonia 2017-2013", the main task of which is the creation of economic clusters. There was developed "Cluster development program» (2008), the purpose of which is to increase the international competitiveness of enterprises through the implementation of joint cluster projects, support for clusters at the previous level (mapping common interests of cluster partners, finding necessary partners for cooperation, research of possible cooperation within and outside the cluster, study of international experience in the creation and development of the cluster, search for partners for cooperation, development of a common strategy and a plan for the cluster, etc.) and full (search for cluster partners, research on marketing, as well as coordination of joint marketing and distribution of production capacity, mapping of the necessary human resources for the implementation of joint activities, initiation and coordination of other joint projects of cluster members, etc.) application.
Germany	Private German company «VDE-IT» (operator of the Federal cluster program), which represents the interests and acts on behalf of the Ministry of economy and technology of Germany, contributes to the implementation of the Program of competence centers development (Competence Networks Germany), aimed at supporting the development of clusters in the regions. The cluster support program is divided into 2 categories: focused on supporting the most promising research with the manifestation of network cooperation of research organizations and businesses, the purpose of which is to create new technological structures (programmes: "BioRegio/BioProfile", "Bioindustrie - 2021"); focused on changing the structure of the regions (program "Innoregio" and initiative "Regional points of growth" under the program "Unternehmen Region", as well as "Netzwerkmanagement Ost", "Inno Watt").
Norway	The state-owned company "Innovation Norway" implements the first cluster program "Arena" (2002), and then the second - "Norwegian centers of expertise" (2006). The latter is aimed at supporting the most dynamic and promising "world-class clusters".
Slovenia	The government is implementing programs, and 11 clusters (automotive, machine-tool, transport and logistics) have been selected for targeted financing.
Ukraine	The projects of normative legal acts on the formation of the basis of the state policy in the sphere of clustering of the economy of Ukraine have been developed. Among them: - the project "Concept for creating clusters in Ukraine" (2008), which defines the prospects for the implementation of the cluster approach in the economy, the advantages of cluster production organisation for the domestic economy, the conceptual framework for the development of clusters; - the project "Concept of the national target program for the development of industry in Ukraine until 2017" (2008), the implementation of which provided for the realisation of the model of the cluster organisation of the industry; - the project "National strategy for the formation and development of cross-border clusters" (2009), the main purpose of which is to solve the problems associated with the asymmetry of the development of regions in Ukraine, the outflow of labour, intellectual and other resources from the border regions of the country, as well as Ukraine's lagging behind other European countries in terms of quality of life, the level of investment attractiveness, competitiveness and development of the innovation environment. These shortcomings are expected to be overcome through the introduction of cross-border cooperation in the creation and development of cross-border clusters.

Compiled by the authors in [36 - 38].

There were adopted "EU clustering Manifesto" (2006) and "European cluster Memorandum" (2008), the aim of which is the growth of the "critical mass" of clusters, which can have an impact on the competitiveness of not only individual countries but the EU as a whole.

In the UN European Economic Commission review (2008) «Increasing the innovation level of firms: the choice of policy and practice tools», the main characteristics of clusters are: geographical concentration (proximity of the cluster enterprises); specialisation (clusters

are concentrated around a certain sphere of activity); a significant number of economic agents (activity of clusters cover not only firms but also public organisations, academies, financial intermediaries, institutions that promote the development of cooperation); competition and cooperation (interaction between residents-members of the cluster); the life activity of clusters (long-term operation period); involvement in the innovation process (technological and non-technological innovations).

In the EU countries, there are two main areas of government intervention in the process of creating and functioning of clusters: the initiation of clusters creation through a significant country-wide project; support for existing clusters and "from below" initiatives.

Among the tools to support the creation and development of clusters which are widely used in the world are: legislative protection of intellectual property rights and copyrights; simplification of the taxation procedure for enterprises (Japan); granting loans, including interest-free (Sweden); targeted grants for research and development (almost in all developed countries); the creation of innovation funds taking into account possible commercial risk (England, Germany, the Netherlands, Russia, France, Switzerland); granting loans which make up to 50% of innovation costs (Germany); reduction of the state tax rate for individual inventors and provision of tax benefits (Austria, Germany, the USA, Japan), infrastructure development and economic insurance (Japan); direct financing (50% of the cost for creating new products and technologies in Russia, the USA and France); deferred payment or exemption from tax if the invention is a kind of energy efficient (Austria); free processing of applications from individual inventors, the provision of free services of patent attorneys, exemption from tax payment (Germany, the Netherlands), introduction of government programs to reduce risk and reimbursement of risk losses (Japan); program for the search and attraction of foreign experts (Australia, the USA, Japan) - Table 11.

One of the directions of the cluster policy of the state should be cooperation between the Chamber of Commerce and Industry (CCI) and clusters. As evidenced by the international experience of the EU countries, the CCI are active partners that are part of the cluster or contribute to the creation of an enabling environment for it. At the same time the level of cooperation can be as follows: CCI are members of their own structures that participate in the activities of the cluster, provide a part of the services to enterprises; CCI temporarily serves enterprises that are part of the cluster in various areas (intellectual resources of the enterprise, innovation support, internationalisation of enterprises); CCI attracts its members to the cluster and explains the procedure for the creation and operation of the cluster. The experience of the Netherlands, Germany, Slovakia,

France and other countries is a positive example of the development of partnerships between the CCI and clusters.

With the aim of improving the efficiency of cluster management and to strengthen international cluster cooperation there was established European Cluster Organization Directory (2009). The purpose of creation is the registry of clusters (network participants, the structure and specialisation of enterprises-participants of the cluster, etc). Cluster policy is implemented by developing a cluster strategy (determines priorities in the organisation and development of clusters) and the cluster program (defines activities, deadlines, responsible executives, etc.). The cluster strategy is a part of the national innovation strategy of the country in which the importance of the government is reduced to fixing the general economic rules, and the implementation of specific cluster initiatives belongs to the regional administration and municipalities.

Despite the advantages of the creation and development of clusters, there are risks (wrong choice of priorities for funding activities of the cluster policy at the expense of budgetary funds; poor coordination of clusters activities in the process of implementing cluster programmes/projects; lack of interest in the participation of executive authorities of constituent entities of state and local government in the implementation of cluster programmes/projects; a low level of monitoring efficiency in the process of implementing cluster policy) for the members of cluster programmes/projects. Therefore, we consider the development of cluster policy and mechanisms for its implementation in order to reduce the impact of risks and social development of the region to be an important point.

The positive aspect of clusters creation and development plays an important role in the formation of the economic environment, because depending on the types they contribute to: the activation of innovation through the accumulation of knowledge of commercial and industrial nature in clusters; the creation of innovation through internal competition between cluster producers; accelerating the introduction of innovation as a result of cooperation between producers and suppliers, etc; the development of high-tech industries (EU, USA) (Boiko, [35]); growth of GDP, tax revenues to the budgets as a result of attracting investments, including foreign ones, local budgets to finance innovative projects of technology and infrastructure development in the framework of public-private partnership projects, mutual lending to cluster members, etc.; intensification of small and medium-sized businesses, especially in the old industrial regions (Italy, USA), through the formation of sub-contracting relations (outsourcing); opening new business zones in the production chain of the cluster; increase in the share of exports of manufactured products (Canada,

New Zealand, USA); creation of unique opportunities for training of highly qualified specialists outside the industry training (exchange of experience, cluster training centers, etc.).

4. Conclusions

- One of the main prerequisites for a sustainable economic development of the country is the expansion of the food industry in Ukraine. The growth of competitiveness of domestic producers both in domestic and foreign markets is possible through the introduction of institutional mechanisms of state regulation of the industry, including through the harmonization of legislation to the EU requirements, the introduction of the NASS system. - Significant attention should be paid to the issues of increasing the volume and improving the quality of food products through systematic technical and economic renewal of enterprises, the introduction of innovations that contribute to the creation of quality and safe products, the creation and development of new forms of organization of innovative activities of the food industry, as well as through attracting investment, creating a favourable investment climate.

5. References

- [1] Ukraine State Statistical Bureau. *Statistical Yearbook of Ukraine for 2016*.
<URL: http://www.ukrstat.gov.ua/druk/publicat/kat_u/publ1_u.htm. Accessed 10 May 2018 (in Ukrainian).
- [2] Ukraine State Statistical Bureau. *Ukraine in numbers*.
<URL: http://www.ukrstat.gov.ua/druk/publicat/kat_u/publ1_u.htm Accessed 10 May 2018 (in Ukrainian).
- [3] Ukraine State Statistical Bureau. (2017). *Ukraine -2016* (in Ukrainian). Statistical collection, pp. 2.
- [4] Ukraine State Statistical Bureau. (2017). Industry of Ukraine in 2012-2015 (in Ukrainian). Statistical collection, pp. 179, and 182-196.
- [5] Kaletnik H., Kovalenko O., Broiaka A. (2017). *Modern trends in the development of the food industry and its place in the economy of the state* (in Ukrainian). *Ekonomika, finansy, menedzhment: aktualni pytannia nauky i praktyky*, 8, pp. 7-26.
- [6] Ukraine State Statistical Bureau. (2013). *Fixed assets of Ukraine for 2012* (in Ukrainian). Statistical bulletin, pp. 5-8.
- [7] Ukraine State Statistical Bureau. (2014). *Fixed assets of Ukraine for 2013* (in Ukrainian). Statistical bulletin, pp. 4-5.
- [8] Ukraine State Statistical Bureau. (2015). *Fixed assets of Ukraine for 2014* (in Ukrainian). Statistical bulletin, pp. 4-5.
- [9] Ukraine State Statistical Bureau. (2017). *Fixed assets of Ukraine for 2016* (in Ukrainian). Statistical bulletin, pp. 4-5.
- [10] Ukraine State Statistical Bureau. (2017). *Investments of foreign economic activities of Ukraine during the years of 2010-2016* (in Ukrainian). Statistical collection, pp. 27, 38.
- [11] Yermak S. (2017). *Problems of innovative activity development at food industry enterprises of Ukraine*. *Journal of Hygienic Engineering and Design*, Vol. 21, pp. 96-102.
- [12] Ukraine State Statistical Bureau. (2013). *Scientific and innovative activity of Ukraine* (in Ukrainian). Statistical collection, pp. 162-257.
- [13] Ukraine State Statistical Bureau. (2014). *Scientific and innovative activity of Ukraine* (in Ukrainian). Statistical collection, pp. 163-305.
- [14] Ukraine State Statistical Bureau. (2015). *Scientific and innovative activity of Ukraine* (in Ukrainian). Statistical collection, pp. 161-246.
- [15] Ukraine State Statistical Bureau. (2016). *Scientific and innovative activity of Ukraine* (in Ukrainian). Statistical collection, pp. 139-250.
- [16] Ukraine State Statistical Bureau. (2017). *Scientific and innovative activity of Ukraine* (in Ukrainian). Statistical collection, pp. 83-134.
- [17] Minina O. V. Shadura-Nykyforets N. T. (2016). *Innovative aspect of the food industry of Ukraine: analytical evaluation* (in Ukrainian). *Ekonomika i suspilstvo*, 7, pp. 101-106.
- [18] Bavyko O. (2017). *Nutritional value and safety of aquaculture products in Ukraine*. *Journal of Hygienic Engineering and Design*, 21, pp. 41-49.
- [19] Verkhovna Rada. *Ukraine Law on amendments to the "On cross-border cooperation"* (in Ukrainian).
<URL: http://www.zakon2.rada.gov.ua/laws/show/1861_15. Accessed 11 May 2018.
- [20] Verkhovna Rada. *The state program for the development of cross-border cooperation for 2016-2020* (in Ukrainian).
<URL: <http://www.zakon.rada.gov.ua>. Accessed 11 May 2018.
- [21] Ukrainian Government. (2014). *State strategy of regional development for the period up to 2020* (in Ukrainian). *Ukraine official bulletin*, 70, pp. 23-25.
- [22] Documents. (2011). *Passport of creation of cross-border transport and logistics centers as structural units of innovation clusters in the Zakarpattia region for 2009-2011* (in Ukrainian).
<URL: <http://www.ua.convdocs.org/docs/index-196916.html?page=8>. Accessed 11 May 2018.
- [23] Artyomov I. V. (2013). *Cross-border cooperation as an important factor in enhancing regional competitiveness* (in Ukrainian). *Naukovyi visnyk Uzhhorodskoho universytetu*, 2, (31), pp. 44-51.
- [24] Ukraine. (2018). *State border of Ukraine* (in Ukrainian).
URL: http://www.proukraine.net.ua/?page_id=243. Accessed 5 May 2018.
- [25] [25] Geografia. (2018). *Geopolitical position of Ukraine* (in Ukrainian).
<URL: http://www.geoknigi.com/book_view.php?id=1047. Accessed 5 May 2018.
- [26] Kvasha O. S. (2014). *Cross-border cooperation of Ukraine with EU countries: problems and prospects of the Carpathian region* (in Ukrainian). *Naukovyi visnyk MDU imeni V.O. Sukhomlynskoho* 5.2, (101), pp. 83-88.

- [27] Pasichnyk V. B. (2015). *Development of cross-border cooperation: scientific and analytical report* (in Ukrainian). DU Instytut rehionalnykh doslidzhen imeni M. I. Dolishnoho NAS Ukraine, pp. 52.
- [28] Yehorov I. I., Boiko O. M., Hryha V. I. (2015). *Industrial parks in Ukraine: problems of formation and prospects of development* (in Ukrainian). NAS of Ukraine, "Institute of Economics and Forecasting of NAS of Ukraine", Ministry of economic development and trade of Ukraine, Research Economic Institute, pp.140.
- [29] Mikula N. A., Zasadko V. V. (2014). *Cross-border cooperation of Ukraine in the context of European integration* (in Ukrainian). NSD, Kiev, Ukraine, pp. 316.
- [30] INTERREG III A / TACIS CBC Polska - Bialorus - Ukraine 2004-2006. (2005). *Program for the protection*. Neighbourhood programe PL-BY-UA, pp. 128 (in Ukrainian).
- [31] Yehorova O. O. *Cross-border industrial parks: foreign experience and prospects of creation in Ukraine* (in Ukrainian).
<URL: <http://www.vestnikdnu.com.ua/archive/201481/120.html>. Accessed 6 February 2018.
- [32] Treaty Series. *Agreement Between the Government the Republic of Austria and the Government of the Republic of Hungary regarding Railway Transit at the Austria-Hungarian Industrial Park Located in the Vicinity of the City of Szentgotthard*
<URL: <http://www.untreaty.un.org/unts/144078-158780/16/9/7655.pdf>. Accessed 6 February 2018.
- [33] Business parks in the Burgenland. *Business Park Heiligenkreuz-Szentgotthard, Zugriffsmodus*.
<URL: <http://www.wibag.at/index.php?id=266>. Accessed 6 February 2018.
- [34] Yehorova O. O. *Cross-border functional units of special legal regimes of economic activity* (in Ukrainian).
<URL: http://www.confrontact.com/2012_02_17/2012_strategy1/26_Egorova.htm. Accessed 6 February 2018.
- [35] Boiko O. M. (2016). *The possibility of using new forms of organization of high-tech production in the implementation of the Association Agreement between Ukraine and the EU NAS of Ukraine* (in Ukrainian). National Academy of Sciences of Ukraine V. M. Geytsa and member-cor. NAS of Ukraine T. A. Ostashko, SI "Institute of Economics and forecasting of NAS of Ukraine" Scientific report pp. 178-180.
- [36] Kryvtsova V. M., Ovchar O. M., Ostapenko O. A. (2009). *Development of cross-border cooperation with the new EU member States* (in Ukrainian). NADA, Kiev, Ukraine, pp. 40.
- [37] Kleyner G. B., Kachalov R. M., Nagrudnaya N. B (2008). *Synthesis of cluster strategy based on system-integration strategy* (in Russian). Nauka-Obrazovaniye-Innovatsii, 7, pp. 18-21.
- [38] Voinarenko M. P. (2000). *The concept of clusters - the path to the revival of production at the regional level* (in Ukrainian). Economist 1, pp. 29-33.