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NEW FORMS OF COOPERATION OF BUSINESS ENTITIES IN THE UKRAINIAN MARITIME ECONOMIC COMPLEX

Grebennyk N. G., Navrozova Yu. O., Shcherbyna V. V.

INTRODUCTION

Recently, science and education, which generate new knowledge and provide training of highly qualified workers for enterprises and organizations of the industry, have been increasingly important in the development of the economy of the maritime economic complex (MEC) of the country. It is new knowledge that is becoming an important component of the modern economy.

The development of information technology, the increasing role of the scientific and technological process, the globalization of the world economy require the introduction of new approaches and methods in management.

In modern business conditions, business structures that use new economic approaches in organizing their activities become successful. Such structures most often contain their own research centres, which provide scientific support for their activities, and work closely with educational institutions, within which training and retraining of personnel for the participants of these structures is carried out.

To the fullest extent, the requirements of this interaction are met by such a relatively new form of association of enterprises and organizations for Ukraine as clusters that have been functioning effectively for a long time not only in industrialized countries, but also in developing economies. Clusters arise at the national, sectoral, regional and municipal levels. The range of forms and types of cluster structures is extremely wide. This creates significant difficulties in the formation of the maritime cluster in a particular region and requires serious research work in this area.

ACTIVITIES ANALYSIS OF THE ENTERPRISES OF UKRAINIAN MARITIME ECONOMIC COMPLEX

Ukraine has always been a maritime power, the importance of the maritime industry for our state is very great, further development depends much on the level of development of the maritime economic complex. Today, according to IMO, 90 % of world trade falls on maritime trade. And Ukraine’s position in the world depends on its participation in maritime trade.

Having survived the peak of its economic activity in 1990, when 121.4 million tons of cargo were handled, the seaports of Ukraine in 1991 faced a sharp crisis – a decrease in cargo turnover, which was caused by the

breakdown in economic ties and a drop in the economy[1]. At that time, the problem of finding a new development path for the enterprises of the maritime economic complex, primarily for ports, became particularly serious. It was during that period that the authorities of Odessa Commercial Sea Port, headed by Mykola Pavlyuk, decided to attract private business for the development of the port industry of Ukraine.

So in 1993 the first private stevedoring companies in Ukraine (such as Ironimpex-Ukraine, Metalzukraine Corp. LTD and Novolog) appeared in Odessa port. The last two stevedores are still working in the port. These were the first joint venture enterprises to which the port assigned storage areas, the infrastructure located on them, and transshipment equipment for the use. For their part, private stevedores guaranteed the attraction of additional freight flows, investment in maintaining the working condition of the existing equipment and acquisition of new machinery, as well as modernization of storage areas. Profits resulting from the performance of stevedoring work were divided between the port and the company in accordance with the amount of the investment contribution from each of the parties. A year later, the Transinvestservice (TIS) company, which is now the largest port operator in Ukraine, emerged in the waters of Yuzhny port. In 1995, the first private trader appeared in Nikolaev port – CJSC Nikolaev Potash Terminal, subsequently reorganized into the Sea Specialized Port of Nika-Tera[2, 3].

The involvement of the private sector contributed to the development of the port industry and in 1997, the cargo turnover of the ports of Ukraine began to grow, but only in 2007 the sea trade ports of Ukraine exceeded the level of cargo turnover compared to 1990 for the first time: 123.7 million tons compared to 121.4 million tons in 1990 (fig. 1).

By this period, the share of private operators in the structure of cargo turnover was about 30 %. Now private stevedores, whose number today is more than a hundred enterprises, handle 78 % of cargo in ports (fig. 2).

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[1] Chastnaya perevalka [Private transshipment] (2017). *Business Cenzor*. URL: https://biz.censor.net.ua/r3018058, accessed 20 June 2020.

[2] Ekspluatacionnaya deyatelnost [Operational activity]. *Odessa Sea Port Authority*. URL: http://www.port.odessa.ua/ru/istoriya/ekspluatatsionnaya-deyatelnost, accessed 20 June 2020.

[3] 25 znakovyh sobytij transportnoj otrasli za 25 let nezavisimosti Ukrainy [25 significant events of the transport industry for 25 years of independence of Ukraine] (2017). *Cetre for transport strategies*. URL: https://cfts.org.ua/spetsproekty/25_znakovykh_sobytiy_transportnoy_otrasli_za_25_let_nezavisimosti_ukrainy, accessed 20 June 2020 [in Russian].

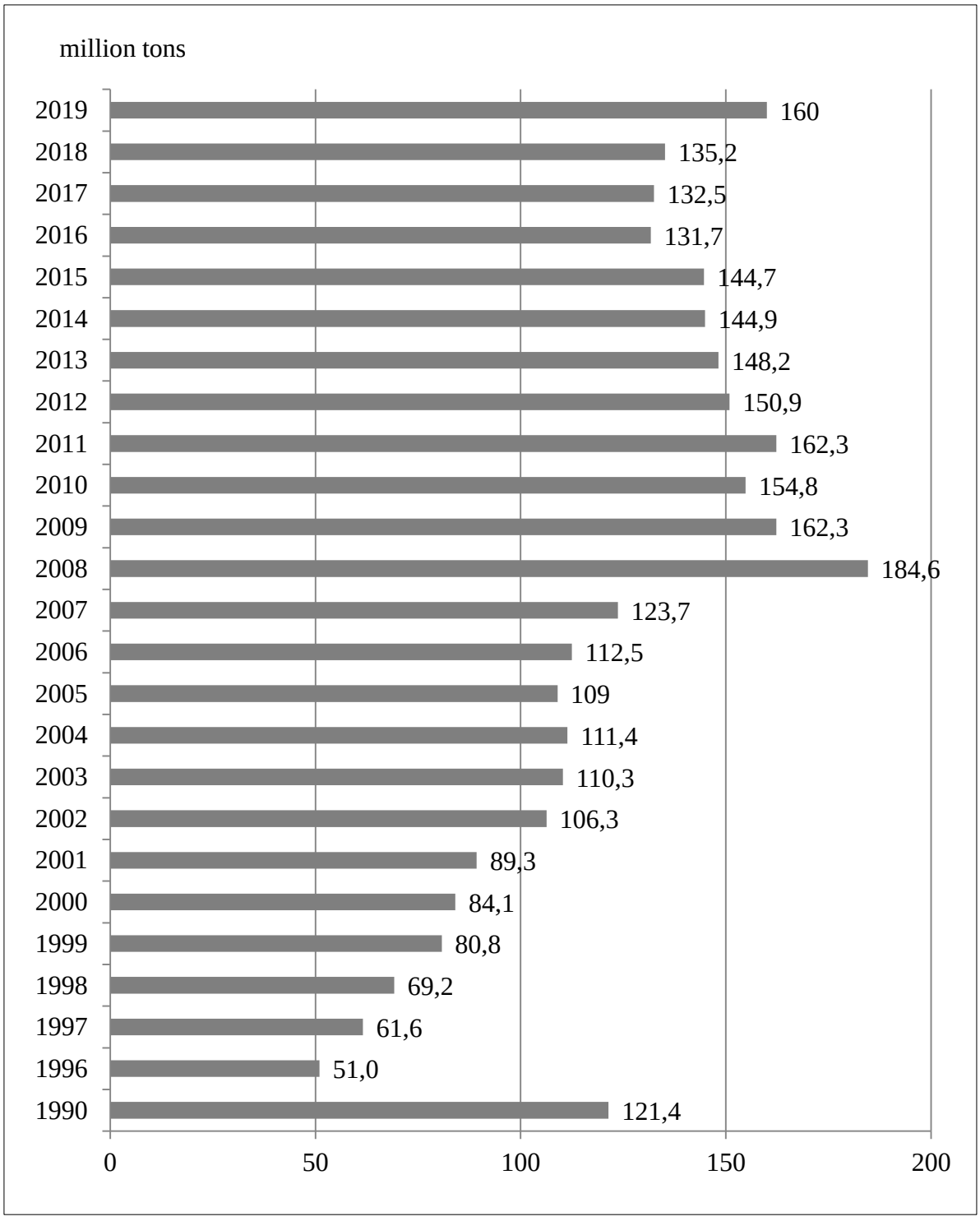

Fig. 1. Cargo turnover of Ukrainian seaports

Source: [Podbelceva E. V. (2005) Ekologo-geograficheskie osobennosti potenciala morskih portov Ukrainy [Ecological and geographical features of the Ukrainian seaports potential]. Ekologichna bezpeka priberezhnoyi ta shelfovoyi zon ta kompleksne vikoristannya resursiv shelfu: Zb. nauk. pr. Sevastopol 12. P. 286-293, available at http://dspace.nbuv.gov.ua/handle/123456789/57013, accessed 20 June 2020. Data of the State Statistics Committee of Ukraine, available at http://www.ukrstat.gov.ua/operativ/operativ_old/tz/prtk/2000.html, accessed 20 June 2020. Official site of Ukrainian Port State Authority, available at http://www.uspa.gov.ua/, accessed 20 June 2020].

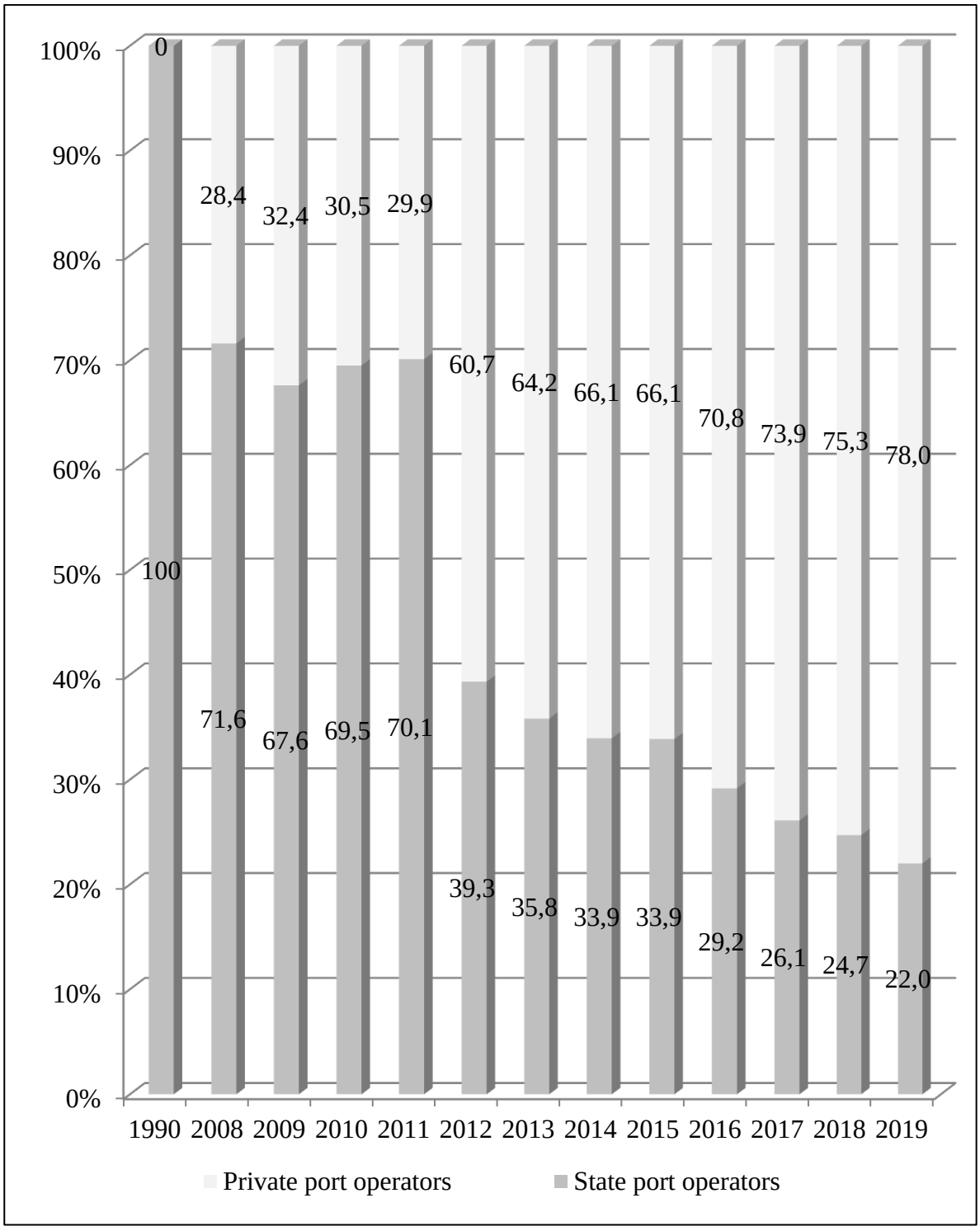

Fig. 2. Cargo turnover structure in Ukraine: state and private port operators

Source: [Podbelceva E.V. (2005) Ekologo-geograficheskie osobennosti potenciala morskih portov Ukrainy [Ecological and geographical features of the Ukrainian seaports potential]. Ekologichna bezpeka priberezhnoyi ta shelfovoyi zon ta kompleksne vikoristannya resursiv shelfu: Zb. nauk. pr. Sevastopol 12. P. 286–293, available at http://dspace.nbuv.gov.ua/handle/123456789/57013, accessed 20 June 2020. Official site of Ukrainian Port State Authority, available at http://www.uspa.gov.ua/, accessed 20 June 2020].

If we consider the shipping industry, the most striking and, at the same time, the most tragic event of the first years of independence of Ukraine was the loss of Black Sea Shipping Company (BSSC) and its bankruptcy. In 1991, 234 vessels were listed on BSSC's balance. Due to corrupt management actions, the company's fleet by January 1997 had been reduced to 15 vessels. The remaining vessels were illegally sold offshore or cut into scrap metal. In 2006, the government began a reorganization process. However, it did not bring results, in 2013 the size of the fleet was reduced to one ship[4].

Back in 2004, Ukraine was one of the 35 largest shipowning countries with a total deadweight of vessels under the national flag of more than 1.7 million tons. And in 2007, the deadweight of the fleet under the Ukrainian flag was reduced to 383.6 thousand tons. In 2018 the deadweight of the merchant fleet of Ukraine amounted to 500 thousand tons, mainly small-tonnage vessels with a carrying capacity of up to 1,500 tons. Their number is 1,501 vessels, including maritime self-propelled and non-self-propelled vessels, self-propelled and non-self-propelled vessels of mixed and inland navigation: cargo, passenger, service and auxiliary ones under the Ukrainian flag[5].

Statistics show that 7 % of merchant ships are older than 50 years, and some are even older than 60 years (fig. 3). Ships between ages of 40 and 50 make up 9 % of the total number of ships. The largest segment is occupied by vessels aged 30-39 years, which is 39 % of the total number of vessels, vessels under the age of 20 years make up 24 %. The young Ukrainian fleet accounts for only 24 % of the total number of vessels, however, this entire fleet is small-tonnage and belongs to private companies[6].

The largest shipowners of the Ukrainian fleet are JSSC "Ukrrichflot", LLC "Nibulon" and PJSC "Ukrainian-Danube Shipping Company" (fig. 4). These shipowners own more than 50 % of the entire merchant fleet under the national flag of Ukraine. Another 8–10 % of the merchant fleet is managed by commercial sea ports (Mariupol, Odessa, Nikolayev, etc.). There are a lot of small shipowners, who own 3–6 vessels aged 35 years and older. Their market share is approximately 2–4 %[5].

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[4] Pavlovskaya L. A., Petrichenko L. V. (2018). Problemi rechnogo sudohodstva v Ukraine [The problem of river navigation in Ukraine]. *Rozvitok metodiv upravlinnya ta gospodaryuvannya na transporti – Development of methods of management and entrepreneurship of transport.* 3 (64). P. 94–106. https://doi.org/10.31375/2226-1915-2018-3-94-106, accessed 20 June 2020 [in Russian].

[5] Register book of ships of Ukraine. URL: http://shipregister.ua/pdf/reg-ships.pdf, accessed 20 June 2020.

[6] Official site of Ukrainian Port State Authority. URL: http://www.uspa.gov.ua/, accessed 20 June 2020.

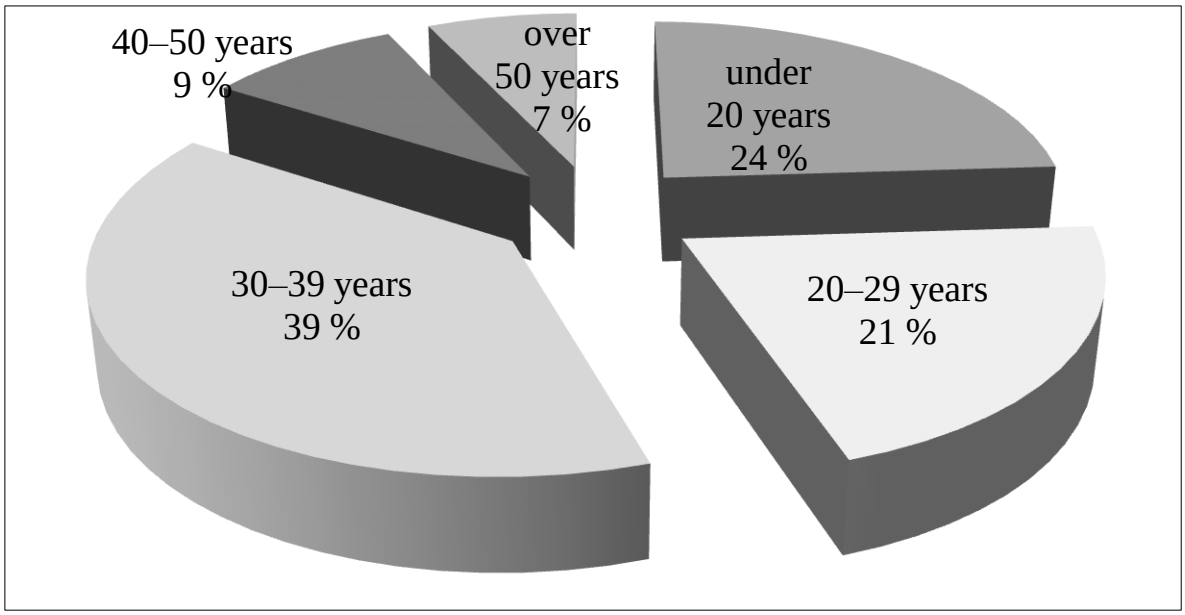

Fig. 3. Fleet structure under the flag of Ukraine, 2018

Source: [Pavlovskaya L.A., Petrichenko L.V. (2018). Problemi rechnogo sudohodstva v Ukraine [The problem of river navigation in Ukraine]. Rozvitok metodiv upravlinnya ta gospodaryuvannya na transporti – Development of methods of management and entrepreneurship of transport. 3 (64). P. 94-106. https://doi.org/10.31375/2226-1915-2018-3-94-106, accessed 20 June 2020.

Register book of ships of Ukraine, available at http://shipregister.ua/pdf/reg-ships.pdf, accessed 20 June 2020]

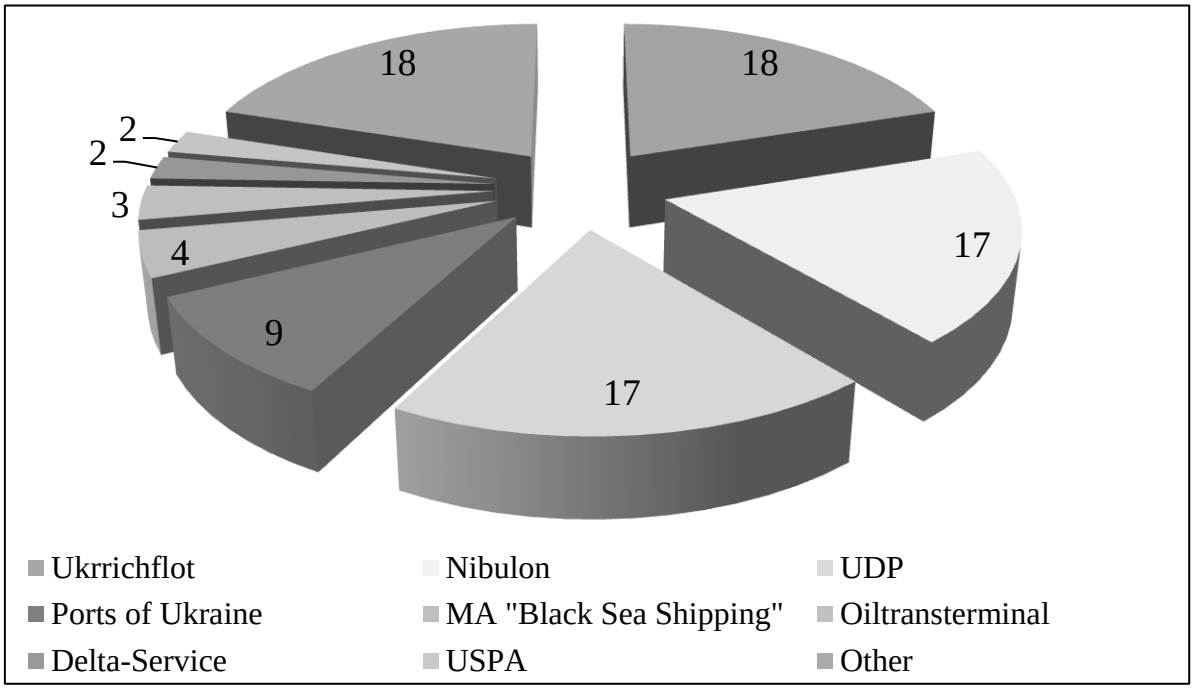

Fig. 4. Structure of Ukrainian shipowners fleet, 2018

Source: [Register book of ships of Ukraine, available at http://shipregister.ua/pdf/reg-ships.pdf, accessed 20 June 2020]

In 2019, there were two state shipping companies left – PJSC "Ukrainian-Danube Shipping Company" and "State Shipping Company Ukrtanker", whose profit in 2018 amounted to 0 UAH[7].

Since 1995, Ukraine has seen not only the decline in the fleet and its carrying capacity, but also the fall in the volume of traffic by the national fleet (table 1)[8].

Table 1

Volume of transported goods by the Ukrainian marine and river merchant fleet, thousand tons

Years	Marine merchant fleet	Growth, %	River merchant fleet	Growth, %
1995	20797,8	-	12844,6	-
1996	14214,2	68,3	7740,3	60,3
1997	10407,4	73,2	8567	110,7
1998	8775,7	84,3	9045,3	105,6
1999	6478,1	73,8	8105,2	89,6
2000	6316,3	97,5	8349,8	103,0
2001	8231,6	130,3	6969,8	83,5
2002	8785,7	106,7	7608,3	109,2
2003	8851,4	100,7	9974,9	131,1
2004	8793,6	99,3	11858,5	118,9
2005	8575,2	97,5	12868,6	108,5
2006	8664,9	101,0	14297,1	111,1
2007	9123,9	105,3	15120,6	105,8
2008	8228,2	90,2	11293,5	74,7
2009	4652	56,5	5145,5	45,6
2010	4067,8	87,4	6989,5	135,8
2011	4145,6	101,9	5720,9	81,8
2012	3457,5	83,4	4294,7	75,1
2013	3428,1	99,1	2840,5	66,1
2014	2805,3	81,8	3144,8	110,7
2015	3291,6	117,3	3155,5	100,3
2016	3032,5	92,1	3641,8	115,4
2017	2253,1	74,3	3640,2	100,0
2018	1892	84,0	3698	101,6
2019	2120,3	3990,2	3990,2	3990,2

Source: [Data of the State Statistics Committee of Ukraine, available at http://www.ukrstat.gov.ua/operativ/operativ_old/tz/prtk/2000.html, accessed 20 June 2020.

[7] Data of the State Statistics Committee of Ukraine. URL: http://www.ukrstat.gov.ua/operativ/operativ_old/tz/prtk/2000.html, accessed 20 June 2020.

[8] European Network of Maritime Clusters. (2015). URL: http://www.european-network-of-maritime-clusters.eu/ [in English]

After Ukraine gained independence in 1991, service enterprises (such as forwarding, agent, crewing companies, freight and customs brokers, etc.) became the first private companies in the maritime industry. Nowadays, several thousand private service companies operate in sea transport, many of which are representative offices of foreign companies. The only state-owned enterprise that provides agency and forwarding services to foreign and Ukrainian shipowners and cargo owners in the Black Sea ports of Ukraine, competing with more than 300 private agent and forwarding companies, is the state-owned enterprise Black Sea General Shipping Agency INFLOT, founded in 1934[7].

The rating of the largest service enterprises is presented in table. 2, all enterprises included in the rating are private.

Table 2

Top freight forwarding and agency companies in 2018 years

Top 5 non-containerized cargo freight forwarding companies		
№	Companies	millions tons
1	Metinvest-Shipping	25,37
2	ATIS	6,91
3	Nika Trans Logistika	5,84
4	Portinvest Logistic	5,1
5	SMT LTD	4,56
Top 5containerized cargo freight forwarding companies		
№	Companies	pieces
1	“Global ocean link”	26 827
2	“Arena Marine”	15 356
3	Group “Uni Lamann Group”	14 767
4	“Lukro”	12 583
5	“Iteris”	12 317
Top 5 agency companies		
№	Companies	ships
1	Metinvest-Shipping	761
2	Stark Shipping	622
3	Atis	479
4	Portinvest Logistic	353
5	Nika Trans Logistika	256

Source: [Chastnaya perevalka [Private transshipment] (2017). Business Cenzor, available at https://biz.censor.net.ua/r3018058, accessed 20 June 2020]

The only state-owned service company in recent years has received negative net income. In 2018, the revenues of the state-owned enterprise BSGSA INFLOT from ship agency and freight forwarding declined; fluctuations in the hryvnia exchange rate affected its financial performance (table 3).

Table 3

Volume of production, thousand

№	Indicators	2018	2017	Growth, %
1.	Net revenue:	5941,0	5435,0	109,3
1.1	agency	5707,0	5028,0	113,5
1.2	forwarding	234,0	407,0	57,5
2	Service of shipping	108	130	83,1
3	Net profit	-2719,0	-1411,0	192,7

Source: [Official site of Ukrainian Port State Authority, available at http://www.uspa.gov.ua/, accessed 20 June 2020]

The analysis of the maritime industry performance has shown that during the period of independence, Ukraine's position as a maritime power was greatly lost – the volume of sea trade through the ports of Ukraine decreased, the share of state port operators in the total cargo turnover decreased, the total deadweight of the Ukrainian merchant fleet decreased, its share in the world's freight traffic. The share of state enterprises in the port services market is inexorably decreasing, and there are practically no state shipping companies and service enterprises, their market share is minimal, and there is almost no profit. But in the maritime industry, the share of private companies is growing, they are developing, and contribute to increased competition. Therefore, further development of the Ukrainian maritime economic complex is possible with the participation of private companies and with the support of private capital.

PROSPECTS FOR IMPLEMENTATION OF A CLUSTER CONCEPT

The cluster, combining representatives of business, authorities and science, is an informal organization whose main goal is to increase the welfare of the region and the competitiveness of the industry.

The most famous global cluster organization in maritime transport is the European Network of Maritime Clusters (ENMC). It includes maritime cluster organizations of such countries as Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Poland, Spain, Sweden, Great Britain and Bulgaria[9].

ENMC was founded on November 4, 2005 in Paris. Its goal was to exchange experiences, learn from each other, coordinate activities, as well as develop and strengthen the maritime clusters of the Member States and Europe as a whole.

ENMC is a flexible organization, whose members on a voluntary basis cooperate in resolving issues related to their activities. Thus ENMC helps to increase the chances of attracting the attention of the authorities to solving problems that are common to maritime enterprises of all countries.

[9] Shevchenko M. (2006). Kontseptsiya morskikh klasterov [The concept of marine clusters]. *Porty Ukrainy – Ports of Ukraine*, 6, 55-56 [in Russian]

In January 2006 in Bergen (Norway) at the seminar "Europe of the Sea" much attention was paid to the peculiarities of creating and functioning of maritime clusters. It was indicated that a maritime cluster means a group of firms, research institutes and educational organizations (universities, specialized schools, etc.), sometimes they enjoy the support of national or local authorities, collaborating to introduce technical innovations to improve the performance of the maritime industry[10].

In some European countries (Holland, Norway, Italy), maritime clusters are understood as a complex of maritime activities that are intertwined and interact, for example, shipping, port operation, shipbuilding and ship repair, fishing, maritime tourism, offshore enterprises, etc.

A maritime cluster can be created and function according to various schemes[11, 12]:

1) "top-down" – this was done in Germany;
2) "bottom-up" – the principle of the cluster performance in Norway;
3) "combination play" (a combination of the above schemes) – the Dutch maritime network was built according to this scheme.

In different countries, special institutions, in particular centers of expertise (in Finland), centers of excellence (Holland, USA), centers for marketing and analytical research (USA, Kazakhstan), business centers, technology parks, technopolises, special economic zones, etc. perform development, construction of network structures and their internationalization[11, 13].

Each country produces a convenient policy for the formation of cluster associations. Different countries adhere to different approaches in the process of building a state policy to support clustering (Fig. 5).

The process of creating maritime cluster organizations continues, and most countries have several cluster structures operating in the maritime industry and combining various spheres (sectors) of activity. These spheres are combined into three groups[11,13]:

1) traditional maritime spheres;
2) coastal and maritime recreation and tourism;
3) fishing.

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[10] The role of Maritime Clusters to enhance the strength and development of maritime sectors. URL: http://ec.europa.eu/maritimeaffairs/pdf/clusters/workshop_presentation_thijssens_en.pdf [in English]

[11] Tamara Blonk (2015) Mapping the European maritime cluster. Netherlands Maritime Technology November, Rotterdam [in English]

[12] Balance. Competitive position and future opportunities of the European Maritime Supplies Industry. (2014). Bremen: European Commission. [in English]

[13] Kryzhanovskiy S. V. (2008). Morskie torgovye porty Ukrainy v rynochnykh usloviyakh [Commercial seaports of Ukraine in market conditions]: Monografiya. Odessa : Astroprint [in Russian]

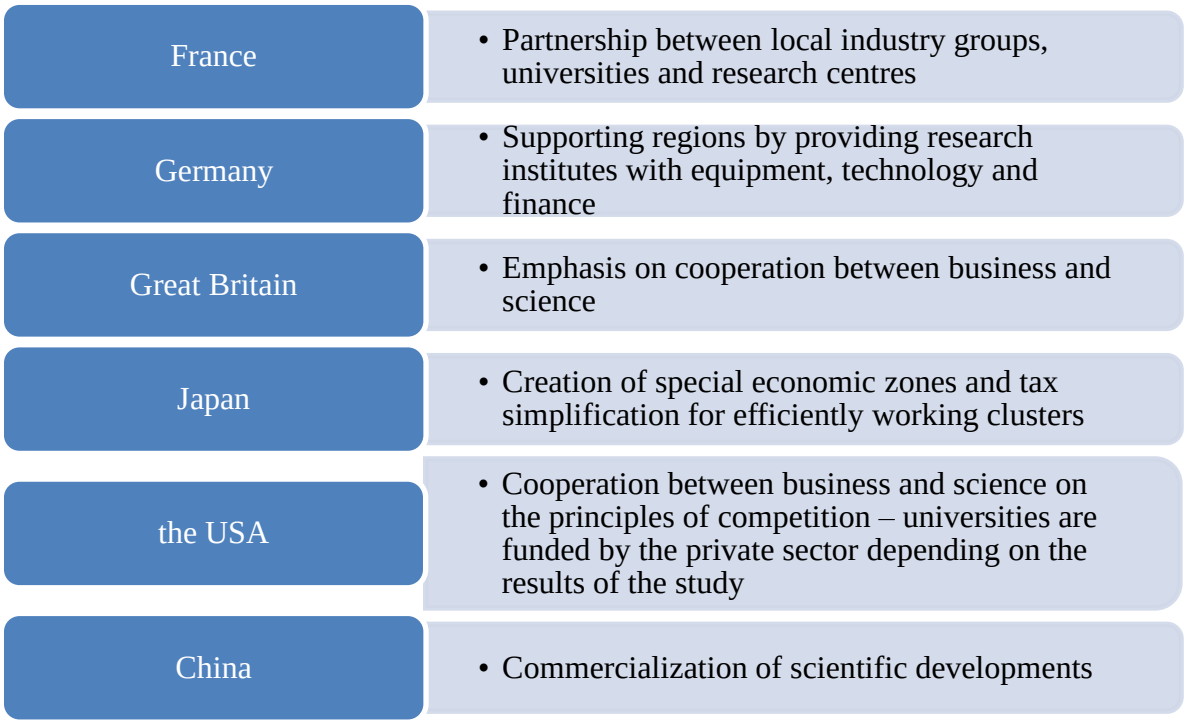

Fig. 5. Features of the national policies of various countries in the matter of supporting clustering

Source: [European Network of Maritime Clusters. (2015) available at: http://www.european-network-of-maritime-clusters.eu/ [in English]

Summarizing the world experience and the interpretation of domestic scientists and experts on the essence of the concept of clusters, the following definition of a maritime cluster was formulated as a territorial-industrial voluntary informal association of enterprises and organizations of port activities as well as related industries, in the development and implementation of the MEC development strategy, which closely cooperate with scientific, educational, financial, consulting and other organizations, local authorities in order to increase the competitiveness of all participants in the association and the economic growth of the coastal region[14].

In Ukraine, there are necessary conditions for the creation and effective functioning of the maritime cluster, which were classified as facilitating and inhibiting (Fig. 6) and a model of the maritime cluster was proposed with a description of the list of its participants[15].

[14] Chekalovets V. I., Grebennik N. G. (2008). Peredumovi stvorennya morskogo klasteru v Ukraïni [Prerequisites for the creation of a maritime cluster in Ukraine] *Ekonomika transportnogo kompleksu – Economics of the transport complex*, 12, 93–104. [in Ukrainian]

[15] Proekt rozporyadzhennya Kabinetu Ministriv Ukraïni "Pro kontseptsiyu stvorennya klasteriv v Ukraïni". [Draft order of the Cabinet of Ministers of Ukraine "On the concept of creating clusters in Ukraine"] (2008). URL: http://www.rada.gov.ua. [in Ukrainian]

In 2008, the Ukrainian Cabinet of Ministers submitted the Draft "Concepts for Creating Clusters in Ukraine", which contained an analysis of the use of the cluster system in the world, indicated the reasons for its insufficient use in Ukraine and substantiated recommendations for the spread of clustering in the country's economy[16].

The above-mentioned Project indicated that the low level of cluster distribution in Ukraine is due primarily to the lack of scientific development and legal support for the functioning of this system. However, this document remained a draft and no further actions regarding the use of a cluster concept in the regulatory field of Ukraine were observed.

facilitating	inhibiting
• Current trends in the development of the global economy. • Favorable geopolitical and economic-geographical position. • Availability of necessary infrastructure. • Developed scientific and educational base. • Favorable social environment. • Diversification of activities and products of enterprises in MEC. • The condition and high level of activity of small businesses.	• The lack of a unified comprehensive development program for both the maritime industry as a whole and its individual components. • Lack of initiative on the part of people interested in the development of MEC.

Fig. 6. Conditions for the creation of the maritime cluster

Source: [Chekalovets V.I., Grebennik N.G. (2008). Peredumovi stvorennya morskogo klasteru v Ukraïni [Prerequisites for the creation of a maritime cluster in Ukraine] Ekonomika transportnogo kompleksu – Economics of the transport complex, 12, 93–104. [in Ukrainian]

There is an understanding of the importance of clustering on the part of power structures in the maritime industry of Ukraine. In particular, the Draft "Strategy for the Development of Ukrainian Seaports" proposes a map of specialization of the ports, which are the basis for the strategy. This document identifies 3 types of strategic development:

– efficient cargo handling,
– harmonious growth,
– creation of clusters.

[16] Voronoy V. I., Grebennik N.G., Navrozova Yu.A. (2013) Programa klasterizatsiï v portoviy diyalnosti Ukraïni [Program activities in the port clustering Ukraine]. *Rozvitok metodiv upravlinnya ta gospodaryuvannya na transporti – Development of methods of management and entrepreneurship of transport*, 2. 16–27. [in Ukrainian]

It is indicated that, in accordance with the Draft Strategy, it is advisable to form 4 clusters: grain and oil in the region of Odessa and Nikolayev, chemistry in the South, containers in the region of Odessa.

In order to identify the reserves for using the potential of the cluster concept in the MEC of Ukraine and to determine the directions on how to maximize the use of the potential of the maritime cluster in the region of the North-West Black Sea coast, a survey was carried out. As a result, according to experts, the most important factor affecting the development of clusters was determined as "the level of professionalism of managers in the industry". The factor "system of training qualified specialists" was recognized as the second most important. The third position is occupied by the factor "level of scientific research in the industry and the degree of their practical implementation"[14].

The study showed that two components of the maritime cluster – science and business are fully present and are used at a fairly high level in the Odessa region. Power structures are also available to ensure the proper functioning of the cluster. However, the organization of the main components of the maritime cluster significantly reduces its functioning effectiveness.

For the effective implementation of the cluster concept in the maritime industry of Ukraine, a clustering program is proposed, the content of which is shown in Figure 7[17].

The implementation of these recommendations will enhance mutually beneficial cooperation in the maritime industry within the framework of the cluster, which will result in increased competitiveness of both coastal regions and the industry as a whole.

STARTUPS AND ACCELERATION OF BUSINESS IN THE MARITIME INDUSTRY

The globalization of the economy and the growth in the speed of dissemination of information necessitate the creation and continuous improvement of processes and technologies. The analysis of innovation over the past few centuries has shown a significant reduction in the length of time from the moment a hypothesis is formulated to its practical application in the form of an invention and its commercialization. In particular, 112 years have passed from the moment of invention of the camera to its practical implementation at the end of the 18th – beginning of the 19th century, and it

[17] Stoyko I. I. (2016). Upravlinnya innovatsiyami: navchalno–metodichniy posibnik. [Innovation management]. Ternopil: TNTU imeni Ivana Pulyuya [in Ukrainian]

took only 2 years to complete the same process, when the microprocessor was invented at the end of the 20th century[18].

Today it is almost impossible to determine this period, which is estimated in months. An important role in this is played by the development of innovative infrastructure and the emergence of new forms of cooperation among business entities, which include business accelerators.

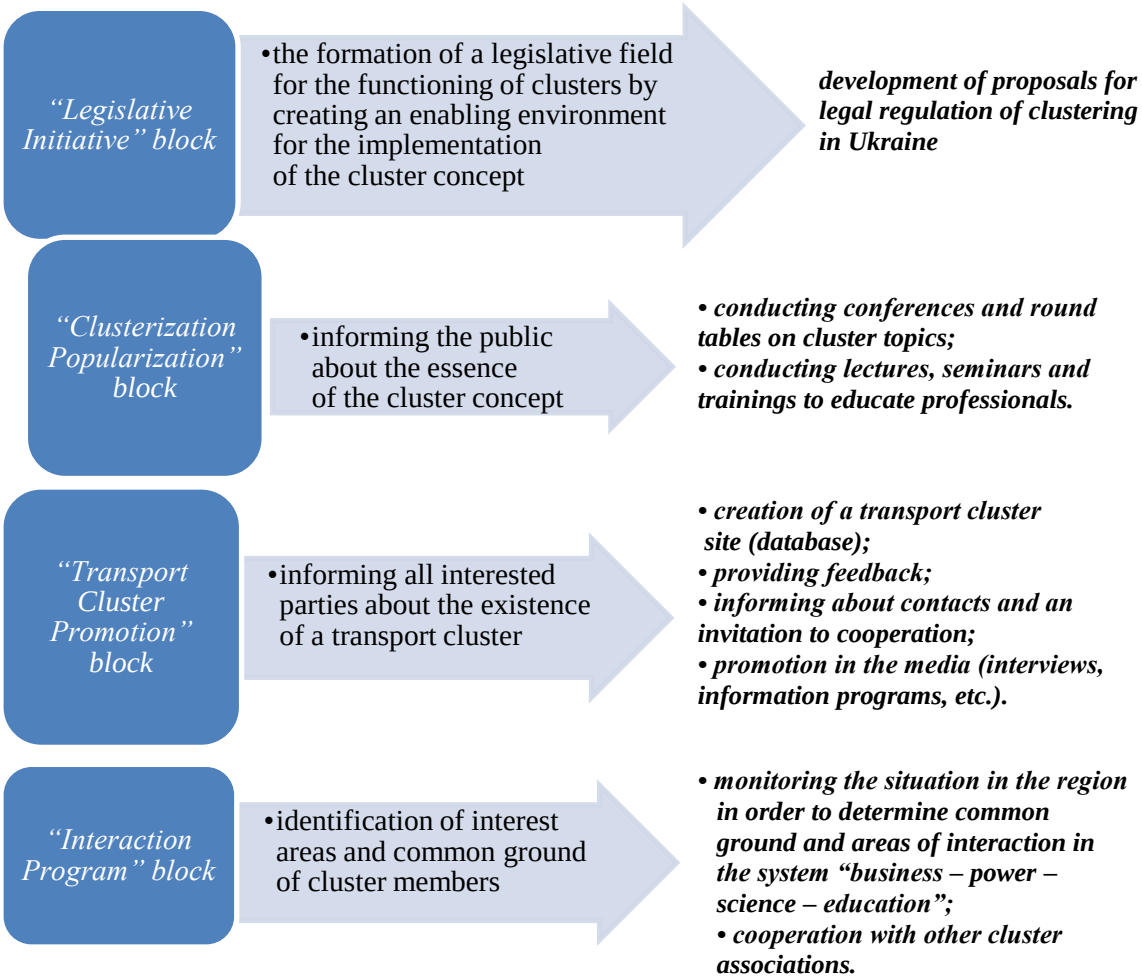

Fig. 7. Content of the Maritime Clustering Program

Source: [Voronoy V.I., Grebennik N.G., Navrozova Yu.A. (2013) Programa klasterizatsiï v portoviy diyalnosti Ukraini [Program activities in the port clustering Ukraine]. Rozvitok metodiv upravlinnya ta gospodaryuvannya na transporti – Development of methods of management and administration of transport, 2. 16–27. [in Ukrainian]]

A business accelerator (from Latin accelero – accelerator, accelerate) is an organization that conducts short-term (usually 3-6 months) training programs that

[18] Adapted from Dempwolf et al. (2014) Innovation Accelerators: Defining Characteristics Among Startup Assistance Organizations by C. Scott Dempwolf, Jennifer Auer, and Michelle D'Ippolito Optimal Solutions Group, LLC College Park, MD 20740 for under contract number SBAHQ-13-M-0197

help entrepreneurs (startuppers) realize their business ideas. Usually, business accelerators have teams working on startup projects. This is a distinctive feature, which differentiates a business accelerator from business incubators, where only favorable conditions are created for the development of traditional businesses.

A comparison of an incubator and accelerator is shown in figure 8[19].

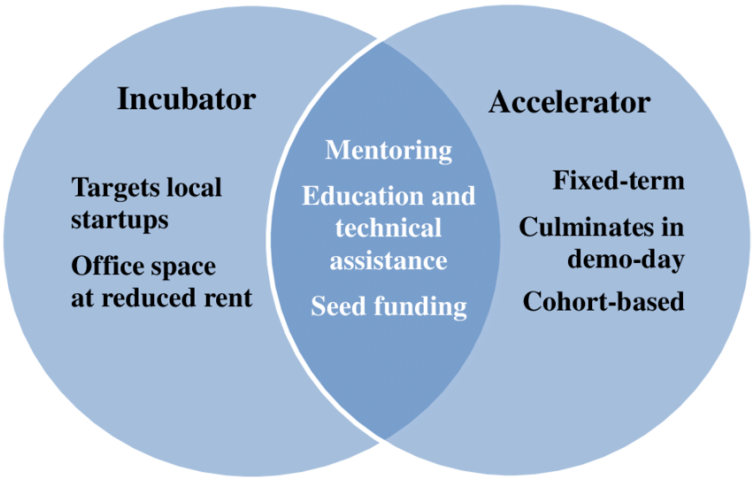

Fig. 8. Comparison of an incubator and accelerator

Source: [Adapted from Dempwolf et al. (2014) Innovation Accelerators: Defining Characteristics Among Startup Assistance Organizations by C. Scott Dempwolf, Jennifer Auer, and Michelle D'Ippolito Optimal Solutions Group, LLC College Park, MD 20740 for under contract number SBAHQ-13-M-0197 Release Date: October 2014, available at: https://www.researchgate.net/figure/Venn-diagram-of-incubator-and-accelerator-characteristics_fig1_313038269 [in English]]

Accelerators are aimed at working with startups, which are understood as a type of business aimed at generating income by implementing a fundamentally new idea. The following differences of a startup from an ordinary (traditional) business should be highlighted:

– the innovative nature of work – the proposal of a completely new idea that is not yet on the market, which often leads to the creation of a new market;

– planned scaling – initially the projects are focused on growth and scaling in the shortest possible time (up to several years);

– close relations with investors – raising capital through business angels and venture companies in several stages for a share in further profit;

– planning a strategy for an investor to exit the project at the creation stage – the process and method of returning investments and the exit of

[19] Candice Landau (2018). What's the Difference Between a Small Business Venture and a Startup?. URL: https://articles.bplans.com/whats-difference-small-business-venture-startup/ [in English]

investors from the business are initially indicated and carefully spelled out in a treaty or a joint operating agreement[20].

Accelerators have proven their value in the economies of developed countries. Today in the world, the average throughput of one accelerator is from 10 to 30 startups. At the same time, the size of investments ranges from 20 to 50 thousand US dollars per startup.

The work of the accelerator, as a rule, is concentrated in the following areas: mentoring; training; infrastructure; attracting investors[21]. But these areas of business accelerator are not limited. It all depends on business ideas that have been carefully selected and accepted for work in the accelerator. There may be significant differences in the work of business accelerators in different countries and industries.

At the end of 2019, about 2.2 thousand business accelerators were operating in the world, the first of which was created by private investors back in 2005 in the USA – "Y Combinator" (fig. 9). The result of its work is such well-known startups as Airbnb, Dropbox, Reddit.

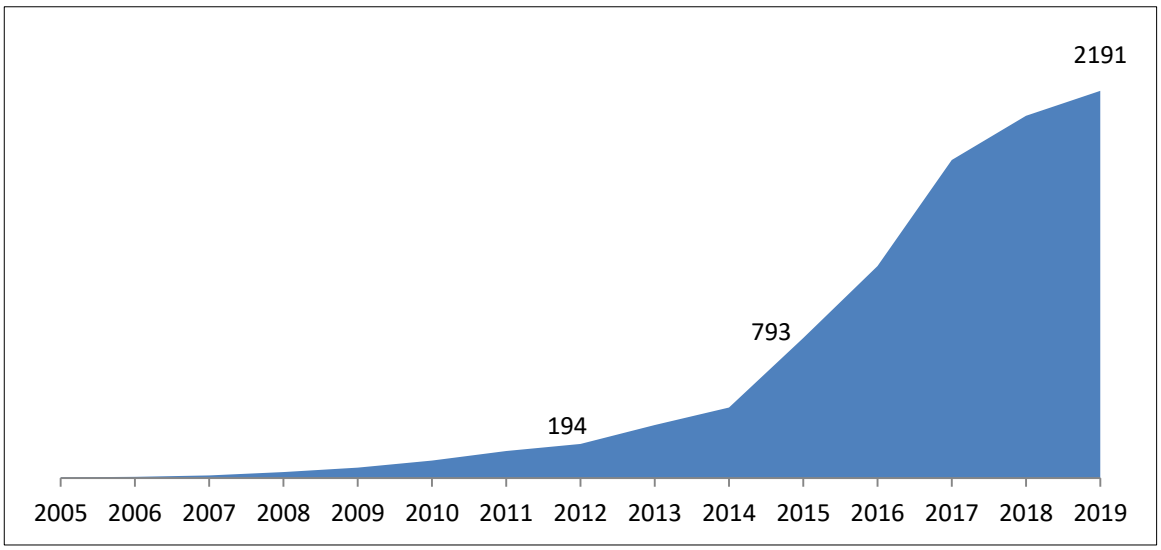

Fig. 9. The number of business accelerators in the world

Source: [Adapted from Dempwolf et al. (2014) Innovation Accelerators: Defining Characteristics Among Startup Assistance Organizations by C. Scott Dempwolf, Jennifer Auer, and Michelle D'Ippolito Optimal Solutions Group, LLC College Park, MD 20740 for under contract number SBAHQ-13-M-0197 Release Date: October 2014, available at: https://www.researchgate.net/figure/Venn-diagram-of-incubator-and-accelerator-characteristics_fig1_313038269 [in English]]

[20] Startap-inkubatori ta biznes-akseleratori v Ukraïni: shcho i de shukati? [Startup incubators and business accelerators in Ukraine: what and where to look?]. URL: http://tempus.nung.edu.ua/uk/news/стартап-інкубатори-та-бізнес-акселератори-в-україні-що-і-де-шукати. [in Ukrainian]

[21] Akseleratory: obzor mezhdunarodnogo opyta [Accelerators: a review of international experience]. URL: https://innoagency.ru /files/Акселераторы_международный %20опыт_ 14.06.2019.pdf [in Ukrainian]

In 2018, the contribution of accelerators to the innovative economy of the world is estimated by the following indicators:

– 14,000 companies – the throughput of all acceleration programs per year;

– $ 220 + billion of investments made by accelerators in startups for the year (0.3 % of the global GDP)[22].

The following types of accelerators will be distinguished, depending on the founders:

– private – created by private venture funds with the goal of generating super-profits from investments in startups in individual industries;

– corporate – created by a large company to solve a specific task of this company, accelerated refinement of the company's own developments to finished products with their further commercialization;

– state (created at the initiative of the state to solve the social and economic problems of the country, region; for the implementation of national programs);

– university (created on the basis of a university for the development of entrepreneurial skills among students and further technology transfer).

The analysis of international experience shows that, despite the high investment activity of private accelerators, corporate accelerators are the most effective, as large companies select startups more carefully and are ready to invest significant funds in them. It also provides a high level of commercialization of scientific developments.

The analysis of world experience[19–23] showed that in the maritime industry in order to enhance innovation and attract creative innovators to the industry to develop and implement future technologies, one should take into account world experience and the following world trends in the development of accelerators:

– activation of large business in the development of acceleration programs: large companies have always carried out and continue to conduct research in their field. The accelerator is simply a new form to identify and attract innovative scientists to work for a large enterprise to solve its problems. According to statistics, about 50 % of accelerators are funded by large businesses;

– the growth of industry specialization: the development of engineering and technology has led to the complication of products and processes.

[22] Startup ecosystem rankings report 2019 by startupblink. URL: https://www.startupblink.com/blog/startup-ecosystem-rankings-report-2019-by-startupblink/ [in English]

[23] Ukraina voshla v reyting stran s naibolshim kolichestvom startapov [Ukraine entered the ranking of countries with the largest number of startups]. URL: https://vesti.ua/strana/332993-ukraina-voshla-v-rejtinh-stran-s-naibolshim-kolichestvom-startapov [in Ukrainian]

Therefore, their development requires professionals who specialize in a particular industry. At the same time, acceleration of development of all business areas is observed, which is reflected in technology. To be a highly qualified specialist, you must constantly monitor trends in this market, which requires a significant amount of time and effort. More than 80 % of corporate accelerators specialize in one technology industry;

– the international nature of the accelerator operation: large accelerators operate in the markets of several countries. Sometimes large accelerators buy small accelerators that operate within a given country, so as not to start from scratch, but to have a certain material base and trained personnel. Perhaps in the near future there will be an acceleration program franchise;

– the emergence of new models of work of accelerators: the acceleration mechanism of the business itself is very flexible and adaptive, capable of changing according to the requirements of the market, country and participants. There are no rigid frameworks and requirements. Now there are various forms of cooperation between investors and startuppers. A new service is emerging – post-acceleration programs. Accelerators are actively working with their graduates who have achieved success, and some have realized their startup, and continue to work as mentors or investors. A new type of business is emerging – a professional startupper;

– decrease in the influence of the state in the development of innovative activity: world experience indicates higher results in accelerators, in which the role of the state is almost minimal.

The United States, which occupies the first place in the ratings of recent years can boast of the most developed startup ecosystem. When compiling the rating, five main indicators were taken into account: efficiency, financing, human capital, market coverage, experience in launching startups. The top five also include Great Britain, Canada, Israel and Austria[24].

In Ukraine, there is no accurate official statistics, but in recent years there has been an increase in investment in startup projects and an increase in the number of accelerators.

In the same global ranking of startup ecosystems from StartupBlink in 2019, Ukraine climbed 4 positions and took the 31st place from 137 countries. Kiev took the 34th place in the ranking of cities with the largest number of startups launched, rising almost 30 positions over the year from the 63rd place. There are 321 startups in Kiev. Among Ukrainian cities in the ranking there are

[24] Itogi-2019. Padenie chisla investitsiy ukrainskikh fondov v mestnye startapy [Results 2019. The fall in the number of investments of Ukrainian funds in local startups]. URL: https://ain.ua/2019/12/30/ukr-investicii-2019/ [in Ukrainian]

also Odessa (235th place), Lviv (299th place), Kharkov (435th place) and Dnipro (561th place)[25].

However, in 2019 experts note a fall in investment in Ukrainian startups, including an educational platform, Fintech startup, a drug delivery service, etc. It was assumed that in 2020, the state will begin to invest in Ukrainian startups. The declared amount of the fund is 440 million UAH[26].

The following business accelerators are announced in Ukraine today:

1) GrowthUP (created in 2010) – focused on the field of Internet services, mobile applications, robotics;

2) Happy Farm (2012) – specialization in IT;

3) Borsch Ventures (2015) – focus on projects in the defense industry, energy, agriculture and healthcare;

4) Sector X – works in Unit.City innovative park. Specialization – logistics, medicine and beauty industry. Since 2020, the work format has been updated – the acceleration program is paid, but does not require a share in the future business;

5) YEP! (Youth Enterpreneurial Partnership) (2016) – includes three levels:

– university-based academic entrepreneurial clubs that host startup semesters;

– starter – a training program for everyone to start a startup;

– accelerator – acceleration program for the best projects from clubs and from the starter program.

6) MHP accelerator 2.0 (2018) – specialization in agrobiotechnology; digitalization; innovations in the automation of industrial production and processes; energy efficiency, green energy and waste management; innovation in corporate governance; trading floors; food: technology and sales.

Today, there is no accelerator in the maritime sector, but there is a striking example of a maritime startup that has entered the international market – the specialized innovative online platform ShipNEXT.

1. Despite the fact that cargo delivery is carried out using sea shipping in the amount of $ 11.2 trillion, and about $ 380 billion is earned, there was no modern electronic platform for effective communication, and business

[25] Mayya Yarova (2017) Dragon Capital vlozhitsya v ukrainskuyu onlayn-platformu morskikh perevozok ShipNEXT [Dragon Capital will invest in the Ukrainian online shipping platform ShipNEXT]. URL: https://ain.ua/2017/10/02/dragon-capital-shipnext/ (дата обращения: 10.05.2020 г.)

[26] ShipNEXT. Shipping Marketplace and freight forwarding booking. URL: https://shipnext.com/ [in English].

communication was carried out in the form of regular electronic correspondence, which resulted in losses due to the "human factor"[27].

Every day, employees of maritime enterprises, such as shipping, brokerage, forwarding companies, perform a lot of tasks that require a lot of time: checking thousands of letters, calculating freight, communicating with the right channels, attracting new customers, etc. Company employees were loaded with mechanical tasks. There have been separate attempts to automate the process, but they were not large-scale. Therefore, in 2015, the first specialized innovative online platform, ShipNEXT, entered the shipping market.

A comparative analysis of the ShipNEXT online platform and similar projects showed its superiority both in quality and price, as well as in the list of services provided[27].

For example, if previously a manager had to spend 70 % of his work time only on a thorough study of information, now he will receive all this almost instantly – in 2 clicks, and he can devote his time to communication with clients to improve service, search, analysis and implementation of more profitable cargo delivery options.

The Ukrainian maritime startup has been repeatedly noted by the professional world maritime community and is highly praised. In the Hong Kong authorities' program, ShipNEXT's startup was among the best and received funding. Moreover, the program has already been approved by BIMCO.

This example shows that today, hard work is no longer the key to success. It's time for the maritime industry to use modern advances with technology and invest in the development of specialized startups.

Innovation is traditionally one of the most risky and capital-intensive. In Soviet times, there were large state industrial research institutes that carried out fundamental and applied scientific research and developed innovations at sea transport enterprises. Today, the state hardly invests in scientific research, although development of the industry is necessary. Some large enterprises invest in research, but this process is episodic in nature.

There are a number of very large enterprises in the maritime industry, but creating an accelerator based on it is not practical. In our opinion, the most promising model of the accelerator will be its creation on the basis of a maritime university with an emphasis on the development of projects for business orders. The advantages of this model are the following:

– accumulation of the scientific and technical potential of the industry in one place;

[27] Semenov V. F., Baldzhy M. D., Mozghaljova V. M. (2008) Reghionaljnyj vymir rekreacijno-turystychnoji dijaljnosti [Regional dimension of recreational and tourist activities]. Odesa: Optimum, pp. 201. (in Ukrainian)

– co-financing of the material and technical base for research, the results of which can be used by all participants of the MEC.

The following areas and tools for the development of accelerators in the maritime industry of Ukraine should be highlighted:

1. Accelerator development in partnership with private business. The analysis of international experience shows that accelerators created in conjunction with large companies are the most effective. There are a number of leaders in the maritime industry – large companies that could combine efforts with scientific potential to accelerate the development of the maritime business.

2. Emphasis on industry specialization. The choice of maritime specialization meets the interests of the city and the region. The proposed distribution of roles: city – legislative and information support, business – financial support; university – development and implementation of the program.

The city can provide subsidies on a competitive basis and, if necessary, provide informational support for promoting the accelerator.

A large maritime business can act as a customer, investor and expert. It must determine the vector of development of the MEC of Ukraine.

Maritime university – upon the request of the maritime business, it will develop a specialized acceleration program, provide a platform for communication and carry out operational control of the accelerator.

3. A phased system for working with startups in the industry:

– launching a project to identify and attract innovative specialists from the maritime industry using all modern communication methods;

– development of an acceleration program taking into account the specifics of the industry and the selection of all elements, taking into account attracted startups and business requests: selection of specialized mentors / experts, development of the material and technical base, etc.;

– development of a mechanism of work: generating ideas, selecting a team, an individual plan for meetings and classes, etc. Additionally, you need to pay attention that startups at different stages have different needs, and they need different support. It is possible to launch several acceleration programs in one accelerator (for example, for start-ups at the MVP stage and start-ups at the scaling stage with the potential to enter the international maritime market);

– the formation of a post-support program for graduates of the accelerator, who in the future can also become mentors of the program.

4. Attracting industry leaders and recognized experts. The participation of the most successful and well-known businessmen, who took place in the maritime business as mentors and experts of the accelerator, will allow attracting the best creative innovators with their startup projects to accelerator programs.

CONCLUSIONS

During the thirty years of Ukraine's independence, maritime positions were seriously lost, which manifested itself in a decrease in the cargo turnover of Ukrainian seaports, the total deadweight of the Ukrainian merchant fleet and its share in world traffic. At the same time, the role of private companies in all sectors of the MEC is growing. Therefore, further development of the Ukrainian MEC is possible with the participation of private companies and with the support of private capital.

The study showed that in the Odessa region, two components of the maritime cluster – science and business – mare fully present and used at a fairly high level. For the effective implementation of the cluster concept in the maritime industry of Ukraine, the Maritime Clustering Program is proposed, which will intensify mutually beneficial cooperation in the maritime industry within the cluster, which will increase the competitiveness of coastal regions and the maritime industry.

In the maritime industry of Ukraine there is a significant innovative potential, which can be realized through the introduction of acceleration in the maritime sector. This will intensify innovation and increase the number of innovative business projects in the industry. The consequence of this will be an increase in the competitiveness level of Ukraine's enterprises in the maritime industry in the world maritime market.

SUMMARY

The chapter analyses the results of the activities of enterprises of the Ukrainian maritime industry over the years of its independence and noted the growing role of private capital in the development of the MEC. A program for clustering the maritime industry and specific steps have been developed to enhance mutually beneficial cooperation in the maritime industry within the framework of the cluster, which will result in increased competitiveness of both coastal regions and the maritime industry as a whole. A promising model of an accelerator based on a maritime university with an emphasis on the development of projects for business orders is proposed.

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Information about the authors:

Grebennyk N. G.,
PhD (Economics), Associate Professor,
Department of Entrepreneurship and Tourism,
Odesa National Marine University
34, Mechnikov str., Odesa, 65029, Ukraine
ORCID ID: orcid.org/0000-0002-1554-0697

Navrozova Yu. O.,
PhD (Economics), Associate Professor,
Department of Entrepreneurship and Tourism,
Odesa National Marine University
34, Mechnikov str., Odesa, 65029, Ukraine
ORCID ID: orcid.org/0000-0002-6106-2825

Shcherbyna V. V.,
PhD (Economics), Associate Professor,
Department of Entrepreneurship and Tourism,
Odesa National Marine University
34, Mechnikov str., Odesa, 65029, Ukraine
ORCID ID: orcid.org/0000-0002-3917-3617