INSTRUMENTS OF STATE SUPPORT FOR SHIPBUILDING:
GLOBAL EXPERIENCE

Volodymyr N. Parsyak¹, Olena Y. Zhukova²

The article explores the challenges stemming from the authors’ perspective on Ukraine’s future business endeavours pertaining to the exploitation of World Ocean resources. Authoritative statistical data analysis from international organizations has shown that many coastal countries are making full use of their advantageous geographical position to address critical challenges such as food provision (by means of fish and seafood industrial production, algae cultivation, and mariculture) and the stabilization of the respective regions’ social situation through job creation and maintenance. The objective focus of shipbuilding as a manufacturer of specialized equipment facilitating human labor in the harsh sea and ocean environments is presented. The business-government relations are examined through the example of prominent maritime nations, providing valuable insights.

Key words: maritime economy, blue economy, shipbuilding, business mission of shipbuilding, state economic policy, national strategy, motivation of entrepreneurial activity, international experience.

JEL Classification: O25, O38, O57, R11

Statement of the problem. The fact that the World Ocean plays a vital role in the existence of the Homo sapiens on Earth is becoming increasingly evident. In addition to its provision of ecosystem services worth billions of dollars each year, which its inhabitants receive absolutely free of charge from Mother Nature, the ocean is also a huge economic sector in all its manifestations: energy production, fisheries and mariculture, maritime tourism, cargo and passenger shipping.

According to UN estimates [1], the Blue Economy is valued at between three and six trillion dollars by 2023. Approximately three billion individuals, primarily situated in developing coastal countries, depend on the ocean as a means of sustenance and household earnings. In 2020, the marine industry exported products worth 1.3 trillion USD, including its generators such as fishing, seafood harvesting and farming, shipbuilding, port equipment manufacturing and related services (logistics, recreation). The European Union leads as the world’s top exporter with 459 billion USD, followed by China with 160 billion USD. India, Turkey, and Thailand are the largest exporters among developing countries, with exports worth 34 billion, 19 billion and 17 billion USD, respectively.

Even countries considered models of economic prosperity and well-being recognize that achieving climate protection, energy supply and sovereignty, safe trade routes, functional sustainable supply chains, and protection of critical infrastructure is impossible without an innovative and competitive maritime industry. This confidence is supported by the fact that in Germany alone, the annual turnover of the Blue Economy is almost 50 billion EUR and the number of jobs directly or indirectly related to it reaches 400,000 [2, p. 6].

The United States is presented as a role model for the emergence of the blue economy in the Americas. The US Department of Commerce’s National Oceanic and Atmospheric Administration [3] reports that over 127 million inhabitants, that is, 40% of the population, reside in coastal communities. In 2019, America’s blue economy grew faster than the nation’s economy as a whole, creating 2.4 million jobs. Contribution to the national GDP of 397 billion USD is due to activities such as tourism and recreation, shipping and transportation, commercial and recreational fishing, energy production, research and related products and services.

When turning the lens to Asia and, for obvious reasons, stopping at China, the national gross ocean product (GOP) reached nearly nine trillion CNY (1.26 trillion USD) in 2019, accounting for 17% of coastal regions’ GDP or 9% of China’s GDP that year. Moreover, the Ministry of Natural Resources reports that the added value of new marine industries has doubled since 2015 [4].

Therefore, calls upon the scientific community, public spheres, the Ukrainian Government, and the leadership of coastal territorial communities to redirect their focus to the issue of developing enterprises that form the framework of the maritime economy [5; 6] no longer appear as professorial fancies. The recommendations offered in this regard [7] ought to be at least examined further, if not immediately implemented in practice, especially with a view to determining the prospects for domestic shipbuilding.

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Analysis of recent research and publications. The controversy about the blue economy has recently become more active in the scientific sphere. In this regard, it is enough to mention, among others, the publications of Shevchuk O.A., Haivanovych N.V. [8], Slobodian V.V. [9], devoted to sea freight transport, Davydenko I.V. [10], Semenov V.F., Altukhova V.V. [11] on cruise shipping, Trutynyk H.O. [12] on aquaculture. As far as shipbuilding is concerned, it is not surprising that it is largely bypassed by the scientific and academic community. This content is intended to activate the debate in at least one of its important aspects.

Highlighting previously unresolved parts of the overall problem. It is about the role of the state as a powerful motivator of business activity in the shipbuilding business. Especially in the leading maritime countries, which are a model of consistently caring attitude to the blue economy, creating material means for its development and protection from external encroachments according to the principle: "Whoever owns the sea owns the land and all its riches."

Formation of the objectives of the article (task statement). The purpose of the research is to study the influence of the governments of the coastal countries on the development of shipbuilding enterprises, to understand in depth and to communicate to the Ukrainian authorities, esteemed scientific colleagues, the public, the relevant solutions that would contribute to the formation of the blue independence of Ukraine after the victorious end of the war.

Summary of the main research material. It is important to note that maritime business operations depend on specialized fixed capital in the form of ships and floating structures. This is evident due to the natural marine and oceanic environment in which it takes place. Hence, it is not surprising that the shipbuilding industry presents itself in two forms.

Firstly, it is an autonomous sector of any nation with its own distinctive technologies, equipment, personnel competency demands, means of production organization and management.

Secondly, it is an integral component of the marine economic complex, providing the requisite equipment for the functioning of blue economy enterprises as such, and it is precisely in this role that this study considers it.

To assess the effectiveness of the business, it is important to understand how many vessels are currently in use (Figure 1).

So, it is evident that the number of ships solely dedicated to the transportation of goods, passengers, and baggage stands at 58,000 units presently, compared to 54,000 units in 2021. Out of these, roughly 31% (18,000 units) are RORO vessels and general cargo carriers. Quality engineering is not the only factor at play; it is expected that new cargo ships will emit 40% less carbon dioxide into the atmosphere on average by 2040.

The dynamics of the values of indicators that characterise the scale of the global commercial fleet (Table 1) also makes this impression.

Apprently, despite all the difficulties, including the global pandemic caused by the spread of the SARS-CoV-2 coronavirus infection, shipyards in all countries have been fulfilling more and more new orders from shipowners. This means that there is a linear relationship between the size of the blue economy and the rise of the shipbuilding industry. This was made possible, among other things, by government support. The attempt to find a confirmation of the announced working hypothesis led to the discovery of another important regularity regarding the genesis of this concern. It is worth taking a closer look at it, because the results of such an analysis could be useful to those who aren’t indifferent to the issues raised.

It began with transparent state protectionism. It is worth recalling the Jones Act (Merchant Marine Act), which the US Congress passed in 1920 and is still in effect today (most recently revised in 2006) [17]. The document primarily guarantees the rights of seafarers who have suffered injuries while performing their duties on merchant ships. However, it is worth paying attention to the part of it that requires that all goods transported by water between US ports must be carried on vessels that were built in the US (!).
Mеханізм регулювання економіки

Table 1 – World merchant fleet

<table>
<thead>
<tr>
<th>Index</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadweight, million tonnes</td>
<td>1794</td>
<td>1850</td>
<td>1921</td>
<td>1972</td>
<td>2.054</td>
<td>2116</td>
<td>2200</td>
</tr>
<tr>
<td>Number of ships, thousand units</td>
<td>49.4</td>
<td>50.1</td>
<td>51.5</td>
<td>52.4</td>
<td>53.3</td>
<td>54.0</td>
<td>58.0</td>
</tr>
</tbody>
</table>

Source: [14; 15]

or companies, and their crew consists of at least 3/4 US citizens and permanent residents.

Additionally, this scheme provides for government guarantees to banks in order to reduce the interest rates on loans to finance shipbuilding projects. The procedure is thought to have originated in Japan during the last century’s 1950s. Japan, as well as South Korea, and China, has benefited from this method, which helped propel them to the forefront of the shipbuilding industry. Shipyards were granted loans for up to 80% of the contract value for shipbuilding, with a repayment period of 8-15 years or longer, at a minimum interest rate backed by the government [18].

Some tax and customs preferences should be added for the imported ship equipment, government orders for the construction of warships and ships (especially for military base service), financial assistance during shipyard reconstruction, payment of the difference between the cost of construction and the contracted ship price, and support for research and development (R&D). An illustration of this is the NAVAIS project in Europe, which follows a modular method for a collection of items aided by the 3DEXPERIENCE integrated commercial platform. NAVAIS employs systematic engineering to produce the concepts, practices, and element repositories for reassessment and reuse during modular engineering and production processes, concerning various product types such as multi-purpose working vessels, and passenger and vehicle ferries specifically [19].

An all-encompassing enumeration of pertinent measures is outlined in the Agreement on Respect for Normal Competitive Conditions in the Commercial Shipbuilding and Ship Repair Industry [20]. The signatories highlighted significant structural imbalances and market trends in the world shipbuilding and ship repair industry. They noted that excessive state aid measures have weakened natural competition, distorted prices, and suppressed the industry for many years. The signatories concluded that these factors must be controlled.

All of the above examples are associated with strategic management methods, when a problem that has arisen entails a timely and effective response from the authorities. This is typically the case in countries with a high level of entrepreneurial culture, experience of cooperation between business and government institutions, and a developed shipbuilding lobby. And in situations where multiple problems arise simultaneously and are intertwined, or when shipbuilding is undergoing a revival or recovery after adverse events (such as those experienced in Ukraine after gaining independence – which were too numerous to count), a systematic approach from the state management is indispensable. This hypothesis was corroborated by the findings of the research conducted.

Take the example of the European Union, where shipbuilding is regarded as a significant industrial segment, both from economic and social perspectives [21]. In 150 large shipyards – civilian and naval, for construction and repair – over 120,000 people are employed, with 40 serving the world markets of large marine commercial vessels. All together, they provide the Union with leading positions in the construction of complex ships (cruise liners, ferries, mega-yachts, dredgers, submarines), power plants (including large diesel engines), environmental and security systems (military shipbuilding), cargo processing and electronics. Their contribution to the development of the region’s industrial infrastructure is equally significant.

At the same time, Europeans understand the threats and challenges facing continental shipbuilding (such as declining orders, uncertain prospects due to fierce competition from Asian shipyards and protectionism from the Chinese government) and have therefore created a system to take care of this. It is shown schematically in Figure 2.

The first aspect of note is the presentation of findings from a meticulous examination of the European shipbuilding sector’s position in the global competitive landscape and the policies that shape the industry’s outlook, forming the basis for decision-making. This exemplifies the diligence of the approaches taken to tackle the problem, which cannot be said for domestic caretakers, who, when undertaking the task of drafting strategies, programmes, or draft laws, do not always ensure the industry’s future but primarily consider their own self-interests. As a result, instead of valuable guidelines, the result is a series of "documents" that are not even worth the paper they are printed on.

Instead, Germany annually allocates huge amounts of money to make shipbuilding more sustainable, smart and profitable in accordance with the procedure outlined. The use of artificial intelligence and the creation of digital product models that reflect the entire life cycle of a vessel are expected to reduce the cost of production of unique steel hull structures by up to seven per cent. In addition, the federal government continues to support the construction of zero-emission ships and thus climate-neutral shipping.

It is useful for officials to know that the decisions in question should not be made during important dates or events (e.g., election campaigns). In Germany, they are the result of carefully planned cooperation between the Ministry of Economic Affairs and Energy, other federal ministries, the governments of the states concerned, industrial associations (e.g., the German Mechanical Engineering Industry Association, the German Shipbuilding and Ocean Industries Association), universities, research institutions, trade unions, and politicians, all united around the
LeaderSHIP Deutschland platform. Every two years, their representatives gather at the Maritime Conference to develop measures to help strengthen the country’s position in the global maritime economy. The result of their cooperation is, in particular, the National Masterplan Maritime Technologies (NMMT) [22], which, in turn, is part of the Maritime Agenda 2025 [23].

Another important detail is that the governments of economically developed countries are focusing not on abstract "shipbuilding" but on investments in improving production processes, staff competencies and innovative technologies used at shipbuilding enterprises. This is natural, as high technology, which must be supported by people with up-to-date knowledge and skills, has a positive impact on production costs, and such enterprises absorb a certain part of demand.

It is too difficult to hold out for long using only the factor of cheap labour. Even for the Chinese, this proved to be too much: the cost of labour has increased by 400% since the country’s entry into the industry, and shipyards remain competitive only thanks to financial injections from the state and its corresponding orders for warships. And if the money runs out, what will happen to China and its shipbuilding industry? This is a rhetorical question. What can be said about Ukraine, where the current budget is balanced exclusively by income from foreign financial donors. Therefore, it is also necessary to get rid of the bad tradition of ecstatic mantra chanting at every opportunity: "Khare the state. Khare support". No one will hear the voice crying out in the desert.

The experience of Canada, another country on the American continent, is a very instructive example. In 2000, participants at the National Shipbuilding Forum in St. John’s expressed a desire to work together to address the industry’s challenges. And there are a lot of them: lack of investment and innovation, current business practices that negatively affect productivity, and limited federal budget support and procurement. Changing the name of the country would bring it closer to Ukrainian realities. And this is exactly what the Canadian government did (Figure 3).

Consider the key features of public management. Firstly, the final text of the Policy was not born in [high] government offices by officials who often have no idea about shipbuilding, but was the result of processing ideas generated by shipyard owners and managers. This is natural, as high technology, which must be supported by people with up-to-date knowledge and skills, has a positive impact on production costs, and such enterprises absorb a certain part of demand.

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Consider the key features of public management. Firstly, the final text of the Policy was not born in [high] government offices by officials who often have no idea about shipbuilding, but was the result of processing ideas generated by shipyard owners and managers. From the very beginning, the emphasis was not on "subsidies and protection of the industry", as is usually the case in Ukraine, but on innovation, investment, own competitive advantages and market opportunities.

Secondly, the government pledged to thoroughly evaluate each proposal for validity, effectiveness, and practicality, considering its capacities and the country’s international commitments. Furthermore, it stressed that all useful suggestions would be accepted while any ambiguities would be rectified or altered, with everything else rejected unless explained and justified. True to its word, the enterprises witnessed the honest, transparent, and adept approach of the country’s leaders.

Third, they did not stop at this point. In 2010, the National Shipbuilding Strategy was published, which covers government umbrella contracts for 20-30 years:

- a) Construction of large and small vessels;
- b) vessel repair and maintenance projects,
c) shipbuilding and modernisation of shipyard infrastructure.

The scale of the Strategy is evidenced by the expected contribution to Canada’s GDP of 13 billion USD, and the creation or retention of 12,000 jobs annually over the period of the Strategy. As can be seen, the mobilisation of domestic shipyard capacity through the Shipbuilding and Maritime Industry Policy was supported by systematic, long-term government orders, mainly aimed at equipping and re-equipping the fleet and coast guard. In this way, the maritime industry was restored, stable jobs were created, sovereignty was preserved and Canada’s interests at home and abroad were protected. The implementation of the Strategy is overseen by the Office of the Auditor General of Canada and the House of Commons Standing Committee on Public Accounts.

Ukraine can only aspire to such a reality at present. Although it would be prudent to act promptly, as begging, even in light of the ongoing military conflict, is a dishonorable plight. This is because thirty years of independence have been irretrievably lost. Finally, it’s time to return to Europe, to the United Kingdom to be precise. His Majesty’s Navy has always been a source of pride and respect for his subjects. That is why it receives a lot of attention. Last year, the next National Shipbuilding Strategy was adopted (as amended in 2017 [25]). Industry representatives were again involved in its development, and the amount of funding is more than four billion pounds.

Speaking on the occasion, Prime Minister Boris Johnson said: "Shipbuilding has been in our blood for centuries and I want to ensure that it remains the backbone of British industry for generations to come. This will ensure that the UK is rightly regarded as a shipbuilding power around the world." [26] The word did not go out with the deed. This is another lesson that Ukraine’s leaders should have learnt, as the previous ones failed to do so. The main sections of the strategy are shown in Table 2.

As the boundaries of this article are limited and more examples emerge, such as shipbuilding schemes, initiatives and schemes being developed and implemented across Vietnam, Australia, Brazil, Norway and numerous other maritime states; in some areas, these constitute tar-

### Table 2 – Generalized content of the UK National Shipbuilding Strategy

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>State order for the construction of warships</td>
<td>Building more than 150 new warships for the Royal Navy and allied navies (large warships and multi-purpose border force support vessels, a new national flagship), as well as civilian vessels over the next 30 years.</td>
</tr>
<tr>
<td>Motivation of modern scientific achievements</td>
<td>Supporting UK shipyards and suppliers to develop vital skills, advance technology and ensure the industry is fit for the challenges of the future. In particular, to provide 206 million GBP to fund research and development of zero-emission ships and infrastructure.</td>
</tr>
<tr>
<td>Improving the organisation of industry management</td>
<td>Establishment of a National Shipbuilding Office to coordinate government activities in the shipbuilding sector.</td>
</tr>
<tr>
<td>Improving procedures for financing shipbuilding projects</td>
<td>Developing a credit guarantee scheme to level the playing field for domestic ship orders compared to competitors’ export credit guarantees and ensure that UK shipbuilders have a chance to win coveted contracts.</td>
</tr>
<tr>
<td>Distribution of sales markets</td>
<td>Active search for export opportunities for shipbuilding products through coordination of joint work between the government and the industry.</td>
</tr>
<tr>
<td>Staff support</td>
<td>Establishment of a UK Shipbuilding Competency Working Group to work with educational institutions across the UK to identify and address relevant skills gaps.</td>
</tr>
</tbody>
</table>

Source: [27]
The rise of shipbuilding requires a close interaction between government and business.

This intelligence should draw attention to the current experiences highlighted and encourage the search for acceptable and effective ways to move forward with beneficial outcomes for the country, its regions and the people living there.

**Conclusions.** The results of the study confirmed a number of working hypotheses that were the basis of the research.

1. It turned out that the vast majority of countries located on the coast of the World Ocean soberly assess its role in providing their industry with raw materials, food and jobs (often in high-tech and innovative practices), conditions for treatment and recovery of physical and intellectual strength. In addition, it serves as an environment for the movement of huge amounts of cargo and passengers. The planet has reached a point where the blue economy has overtaken the global economy as a whole in terms of its growth rate. Ignoring this or pretending that it is not happening is not an elementary but a fatal mistake. It will become increasingly difficult and expensive to correct over the years.

2. It was found that the rise of the maritime economy entails the rapid development of shipbuilding. This pattern is due to the fact that shipyards are the only place that combines specific technologies, unique fixed assets, and special competences of personnel, which, when combined and interacted with, are able to create ships and other complex engineering structures, the existence of which, in all their variety of sizes and purposes, makes it possible to operate in conditions that are unnatural for humans: on water and underwater. Moreover, warships are being built here, like nowhere else, to protect domestic blue economy enterprises from external encroachment, ensuring the safety of personnel, the inviolability of material assets, and the safety of extracted and manufactured products.

3. Paying tribute to the mission entrusted to ships and vessels, maritime powers do not get tired of taking care of the preservation and development of domestic shipbuilding. This analysis has demonstrated the diversity of forms and content of this care. Its characteristic features are systematic and continuous. Governments are focused on their key tasks: signing contracts for the construction of warships, funding research to develop advanced engineering and construction technologies, providing shipyards with specialists with the relevant professional competencies, and levelling the economic position of domestic producers in international competition. From all of this, it remains to choose what is closer to people and within their power.

And Ukraine will become a maritime power!

**REFERENCES:**


ІНСТРУМЕНТИ ДЕРЖАВНОЇ ПІДТРИМКИ СУДНОБУДУВАННЯ: СВІТОВИЙ ДОСВІД

Володимир Никифорович Парсяков1, Олена Юріївна Жукова2

Автори у цій статті розглядають проблеми, які виливаються з їхнього бачення майбутнього розвитку в Україні видів економічної діяльності, що пов’язані з освоєнням ресурсів Світового океану. Проведеного огляду стосовно економічної діяльності, що пов’язані з освоєнням ресурсів Світового океану, використовують своє вигідне географічне розташування для розгляду висування економічної діяльності, що пов’язані з освоєнням ресурсів Світового океану.

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