

Artículo de investigación

Competitiveness assessment of ship repair enterprises in the coastal regionОЦЕНКА КОНКУРЕНТОСПОСОБНОСТИ СУДОРЕМОНТНЫХ ПРЕДПРИЯТИЙ
ПРИМОРСКОГО РЕГИОНА

Evaluación de la competitividad de las empresas de reparación de buques en la región costera

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Turchaninova T.V.³⁰**Khrapov V.E.**³¹**Vasiliev A.M.**³²**Kuranov Yu. F.**³³**Abstract**

The purpose of the article is to determine the conditions and assess the factors contributing to the competitiveness of machine-building enterprises with single and small-scale production in the field of ship repair and other infrastructure activities in the coastal region. The theoretical foundations for assessing the competitiveness of market economy subjects are examined, various methods of this assessment are investigated, and their positive and negative sides are revealed.

An analysis of the basic foundations of the formation of competitiveness of shipyards in the coastal region (Murmansk region) was made in the process of the study. The author's technique is developed using quality indicators for assessing the competitiveness of ship-repair enterprises. The calculation of the competitiveness of these enterprises using the rating of quality indicators was made, the directions of its increase were determined. The proposed author's method allows to evaluate the ratings of ship repair enterprises used by shipowners when placing orders.

The methods of induction, deduction, comparison and synthesis were used in the article; analysis of the competitiveness of ship repair enterprises as participants in the spatial interaction of enterprises providing marine economic activities and other infrastructure coastal enterprises was carried out using the above methods.

Improving the competitiveness of ship repair enterprises will create conditions for increasing the spatial interaction of business entities of the fisheries complex, primarily, increasing the

Resumen

El propósito del artículo es determinar las condiciones y evaluar los factores que contribuyen a la competitividad de las empresas de construcción de maquinaria con producción en pequeña y pequeña escala en el campo de la reparación de buques y otras actividades de infraestructura en la región costera. Se examinan los fundamentos teóricos para evaluar la competitividad de los sujetos de economía de mercado, se investigan varios métodos de esta evaluación y se revelan sus aspectos positivos y negativos.

En el proceso del estudio se realizó un análisis de los fundamentos básicos de la formación de la competitividad de los astilleros en la región costera (región de Murmansk). La técnica del autor se desarrolla utilizando indicadores de calidad para evaluar la competitividad de las empresas de reparación de buques. Se realizó el cálculo de la competitividad de estas empresas utilizando la calificación de indicadores de calidad, se determinaron las direcciones de su aumento. El método del autor propuesto permite evaluar las calificaciones de las empresas de reparación de buques utilizadas por los armadores al realizar pedidos.

Los métodos de inducción, deducción, comparación y síntesis fueron utilizados en el artículo; El análisis de la competitividad de las empresas de reparación de buques como participantes en la interacción espacial de las empresas que realizan actividades económicas marinas y otras empresas costeras de

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number of visits of fishing vessels to the Murmansk Sea Port. Returning the fishing fleet to service in the city of Murmansk will create additional jobs in all infrastructure enterprises (transshipment facilities, refrigeration facilities, ship repair, bunkering and supply), receive additional financial resources in budgets of all levels, and increase the participation of the fishing industry in the implementation of the country's Food Security Doctrine.

Keywords: ship repair enterprises, single and small-scale production, competitiveness, spatial interaction, coastal regions, marine economic activity.

infraestructura se llevó a cabo utilizando los métodos anteriores.

La mejora de la competitividad de las empresas de reparación de buques creará las condiciones para aumentar la interacción espacial de las entidades comerciales del complejo pesquero, principalmente, aumentando el número de visitas de los buques pesqueros al puerto marítimo de Murmansk. El retorno de la flota pesquera a la ciudad de Murmansk creará empleos adicionales en todas las empresas de infraestructura (instalaciones de transbordo, instalaciones de refrigeración, reparación de buques, abastecimiento de combustible y suministro), recibirá recursos financieros adicionales en presupuestos de todos los niveles y aumentará la participación de industria pesquera en la implementación de la Doctrina de Seguridad Alimentaria del país.

Palabras claves: empresas de reparación de barcos, producción en pequeña y pequeña escala, competitividad, interacción espacial, regiones costeras, actividad económica marina.

Аннотация.

Целью статьи является определение условий и оценка факторов, способствующих повышению конкурентоспособности машиностроительных предприятий с единичным и мелкосерийным производством в сфере судоремонта и другой инфраструктурной деятельности приморского региона. Выявление направлений повышения конкурентоспособности судоремонтных предприятий и её рост способствуют расширению пространственного взаимодействия субъектов бизнеса основной и вспомогательной деятельности со всеми положительными последствиями для предприятий береговой инфраструктуры и для региона в целом. Рассматриваются теоретические основы оценки конкурентоспособности субъектов рыночной экономики, исследуются различные методики этой оценки, раскрывают их положительные и отрицательные стороны.

В процессе исследования выполнен анализ базовых основ формирования конкурентоспособности судоремонтных предприятий приморского региона (Мурманская область). Разработана авторская методика, использующая качественные показатели оценки конкурентоспособности судоремонтных предприятий. Произведен расчет конкурентоспособности этих предприятий с использованием рейтинга качественных показателей, определены направления ее повышения. Предлагаемая авторская методика позволяет оценить рейтинги судоремонтных предприятий, используемых судовладельцами при размещении заказов.

В работе использовались методы индукции, дедукции, сравнения и синтеза, с помощью которых осуществлен анализ конкурентоспособности судоремонтных предприятий как участников пространственного взаимодействия предприятий, обеспечивающих морехозяйственную деятельность и иных инфраструктурных береговых предприятий.

Повышение конкурентоспособности судоремонтных предприятий создаст условия повышения пространственного взаимодействия субъектов бизнеса рыбохозяйственного комплекса, прежде всего, увеличения заходов в Морской порт Мурманск промысловых судов. Возврат на обслуживание в город Мурманск промыслового флота позволит создать дополнительные рабочие места во всех инфраструктурных предприятиях (перегрузочные комплексы, холодильные мощности, судоремонт, бункеровка и снабжение), получить дополнительные финансовые средства в бюджеты всех уровней, повысить участие рыбной отрасли в выполнении Доктрины продовольственной безопасности страны.

Ключевые слова: судоремонтные предприятия, единичное и мелкосерийное производство, конкурентоспособность, пространственное взаимодействие, приморские регионы, морехозяйственная деятельность.

Introduction

There are tendencies in Russia that reduce the competitiveness of Russian enterprises and their competitive products. According to expert estimates, the total decrease in competitiveness was approximately 12.0% in 2008–2013 (Sergeev, 2014).

The raw orientation of the Russian economy is one of the main reasons for this. Only a change in the structure of the domestic economy will create conditions for overcoming its dependence on changes in the prices of hydrocarbons and other natural resources on the world market. It requires the search for ways and economic mechanisms to overcome negative trends and changes in the situation. The article is devoted to solving these problems in the sphere of industrial enterprises of the Murmansk region with single and small-scale production engaged in ship repair and other activities with the aim of increasing their participation in the spatial organization of the economy of the coastal region.

The business structures of the sectors of the Russian economy that are developing renewable and non-renewable natural resources interact spatially with the service enterprises supporting their activities. For example, coastal ship repair enterprises and maintenance bases provide the maritime business of the ships of the navy. At the same time, foreign infrastructure enterprises are often chosen, since the competitiveness of these enterprises is a priority in a market economy.

The government of the Russian Federation in recent years has focused on solving this task, but massive positive results have not yet been observed. In our opinion, there are quite a few reasons for this, but the main ones are the negative consequences of market transformations of the 90s, supplemented in recent years by the regimes of economic sanctions of the United States and the European Union countries.

Before the beginning of market reforms in 1990, about 5.0% of the world gross domestic product was produced in the Russian Federation, but this volume was constantly falling and now stands at about 2.0%. According to statistics, Russia produced industrial products 1.2 - 1.4 times more than many leading countries in the market economy in 1985, while Russia was inferior to the United States and Japan by 22.6% and 69.5%, respectively. Subsequently, the Russian Federation lagged behind the leading countries of

the market economy and had a volume of the economy below the European Union 2 times; Germany - 2.8 times; and from the USA 12 times by 2012 (Gerasimov, 2013).

Russia has entered the period of implementation of the strategy of growth of economic indicators (increase in GDP), the policy of import substitution, which cannot be implemented without changing the structure of the country's economy. It is necessary to create conditions and economic mechanisms in the country and regions, aimed at creating competitive business structures, both at the national and regional levels, capable of obtaining the maximum synergistic effect from their spatial interaction.

The Murmansk region is a typical representative of the regions in which the extractive industries play a decisive role in the formation of the gross regional product. Their share is more than 50% (Strategy, 2018); therefore, the results from the spatial interaction of the mining and service enterprises are very important for it.

Literature review

1. Regional aspects of maritime economic activity of the seaside región

Given the geopolitical situation, Russia currently can only count on its potential, which is being formed in the regions. Regional economic systems are characterized by diversity, which are based on the availability of mineral resources, developing or existing industrial and transport infrastructure, and the possibilities and development of agriculture. One of the most important regional potentials is human, capable of ensuring the development of other areas of regional potentials. At the same time, each region of Russia has some specific features characteristic only for this region. For example, the coastal regions use their potential, which is formed due to the spatial interaction of business structures that use the features of both the territories and maritime activities interconnected with the economic entities of the coast.

Effective harmonious spatial interaction of marine and coastal economic entities significantly affects the socio-economic development of coastal regions. The modern development of the Russian coastal regions (includes and) the development of natural resources located in the waters and shelves of the

seas. Therefore, one of the priorities of the economic activities of the coastal regions is the marine economic activity, spatially uniting the maritime and coastal business entities.

The Murmansk region is a seaside region, but the basic sectors of its economy, in addition to marine economic activities, are the mining and processing of mineral resources (mining, metallurgical, and chemical sectors of the economy). The priority economic activities of the region related to the sea include the provision of the country's defense, the development of fishing and marine transport for various purposes, as well as coastal infrastructure enterprises that ensure the operation of the fleet on the coast. These facilities include ports and berths, oil and cargo handling terminals, service companies and enterprises, which are necessary for the effective operation and repair of vessels of various fleets (Karsuntseva, 2011; Kirsanov, 2015).

It is necessary to formulate the conditions for the spatial interaction of enterprises of priority sectors of the economy with enterprises providing their work in order to obtain the maximum economic effect from the spatial interaction of economic entities of the region using regional potential when developing socio-economic development programs.

The object of the research is machine-building enterprises with single and small-scale production, ship-repair enterprises that provide the work of various fleets and coastal enterprises. Industrial fishing and its fleet has always been a "locomotive" for service enterprises, including the objects of our research.

Practice shows that one worker in the field of activities creates opportunities and conditions for the organization of 2-3 jobs at coastal enterprises in related industries. Therefore, the rational use of economic results of maritime activities will affect the economic development of the territory of the coastal region. Elements of economic harmonization of the spatial interaction of marine and coastal infrastructure enterprises are laid in regional development programs. It allows to create conditions conducive to the synergistic effect of the spatial interaction of the subjects of maritime economic activity and coastal enterprises necessary to ensure the socio-economic growth of the region.

For example, the main link of the industrial and economic system of industrial fishing, which is a part of the marine economic activity, is the fishing and transport fleet, which needs coastal

infrastructure capable of ensuring its efficient operation. The list of onshore infrastructure enterprises includes: transshipment complexes, industrial enterprises with a single and small-scale production (ship repair), service enterprises providing supply, transport and other activities.

During the planned economy, the coastal enterprises of the Kola Peninsula provided the fleet with quality services. These services were of high quality and not competitive, since the issue of competitiveness was not of great importance during this period within the framework of the production and research complex, which is an economic mechanism for the spatial interaction of economic entities. In a market economy, on the contrary, competitiveness is placed on one of the leading places, since ensuring the competitiveness of goods and services, as well as of the subjects of spatial interaction of a market economy, ensures their successful functioning.

Coastal Infrastructure Enterprises, including ship repair facilities, should be attractive and competitive in the market for potential shipowning customers. This situation can significantly affect the solution of the problem of "non-sailing" fishing vessels, since if shipowners are confident in the competitiveness of ship repair services in the port of Murmansk, they will more actively solve this problem, which has important socio-economic importance for the region and the country.

Currently, in the Murmansk region, about 200 vessels receive permission to fish, of which 40.0% are "non-sailing". The cost of servicing a fishing vessel when entering the port of Norway is 200.0 thousand Norwegian crowns, and if these vessels entered the port of Murmansk, the region would receive additional revenues per year in the amount of 4,200.0 million rubles (Khrapov and Turchaninova, 2015). The reason for vessels not going to domestic ports is the reluctance of fishing companies - owners of vessels to pay VAT and customs duties for purchased vessels and for the cost of repairs of vessels made in foreign ports, as well as low competitiveness of coastal infrastructure enterprises of the Murmansk region (Vasiliev, 2016). At the same time, it should be noted that, according to the current legislation, shipowners can return VAT on deliveries of fish products to the customs territory of the Russian Federation. Currently, Norwegian, Danish, Polish ship repair enterprises win competition from Murmansk ship repair enterprises. It is necessary to increase the competitiveness of domestic regional ship repair

enterprises, and this can be done only with a realistic assessment of external and internal factors affecting competitiveness. This will allow to achieve the above research objectives and improve the efficiency of the regional economy of the coastal region.

2. The current state of ship repair enterprises of the Murmansk región

Machine-building enterprises with single and small-scale production in the Murmansk region, related to ship repair, are created on the basis of the fragmentation of large enterprises formed during the planned economy, they use outdated (physically and morally) equipment and technologies.

The study showed that the wear and tear of the equipment used at enterprises is more than 74.0%, which causes high costs for its repair and maintenance. Low equipment efficiency and high operating costs (maintenance repairs, energy costs) limit the ability to produce competitive products. In addition, ship repair enterprises have outdated and worn infrastructure facilities (power grids, water mains, sewers, roads, etc.). The profitability of ship repair orders, as a rule, is in the range from 2.0 to 12.0%, and this does not allow to form the necessary own funds for the implementation of investment projects aimed at improving competitiveness. It is also worth noting that there is no sustainable prospect for the innovative development of Russian ship repair enterprises due to the uncertainty of the possibilities of interaction between marine and coastal enterprises.

According to the results of the survey, it was found that no more than 30.0% of the enterprises in the ship-repair sector of the economy of the Murmansk region use borrowed funds, and only enterprises that are part of United Shipbuilding Corporation OJSC rely on budgetary (state) funds. For example, the branches of the ship repair plant CS Zvezdochka (Severodvinsk), located in the Murmansk region, according to innovative plans to improve competitiveness, are supposed to receive 5.0 billion rubles for the modernization of fixed assets. The analysis showed that modern methods of managing the main production at the ship repair enterprises under study are not used, management is reduced to the method of "common sense" (Dianne, 1993; Kirsanov, 2015).

Engineering divisions (departments of the chief designer and the chief technologist) at the ship-

repair enterprises are minimized. They mainly provide only the detection of ship components and mechanisms, the development of technical documentation based on its results for the implementation of operational ship repair orders. With regard to new innovative developments that provide an increase in competitiveness, there is practically no such technical possibility at these enterprises (Tatarskikh and Dubrovina, 2018; Turchaninova and Khrapov, 2017). Ship repair enterprises do not provide a comprehensive modernization of their own production, management methods, and, accordingly, an increase in competitiveness in general in a situation. Enterprises do not use digital technologies to manage various types of resources, with the exception of using in an accounting unit (Andreev, 2010; Polovinkin and Fomichev, 2018).

According to the results of the study, in addition to the above, some problematic issues that restrain the provision and increase of competitiveness of ship repair enterprises of the Murmansk region were identified (Turchaninova and Khrapov, 2017):

- Lack of complete and reliable information about the prospects for the development of the fleet, at least within the Northern regions of Russia;
- Insufficient capacity utilization;
- High costs of life support (lighting, heating, territory cleaning, etc.);
- Lack of a clear and understandable formulated protectionist industrial policy within the region;
- Lack of qualified specialists of various specialties in ship repair and shipbuilding orientation within the framework of the regional labor market;
- The impossibility of obtaining "long" credit resources with a low interest rate for investment activities;
- Lack of a databank of available innovation developments and regional research centers or institutes capable of developing new innovative ideas.

In order to increase the competitiveness of the domestic industry, the Government of the Russian Federation approved the program "Development of Industry and Increasing Its Competitiveness" in 2012. The implementation of the program is expected in two stages: the first is 2013–2015; the second is 2016–2020. This target program is financed by the federal budget (Decree, 2014).

In March 2018, a State Council meeting was held under the chairmanship of the President on the problems of the competitiveness of the domestic economy. According to participants, the country's fuel and energy complex should remain the locomotive in the development of domestic competitive engineering. Machine builders, including ship repairmen, to increase their own competitiveness should increase investment. These investments should be aimed at increasing labor productivity, introducing new technologies, purchasing new equipment and introducing modern management methods that will allow domestic enterprises to compete with Western "partners" first in the domestic and then in foreign markets. At the same time, it should be noted that investments will never be justified if the underutilization of existing machine-building enterprises is preserved. Currently, it is 61.4% in the country (Vyazagov and Kilchukov, 2014) and this is a negative point and does not contribute to the realization of the goals set.

When developing a strategy to improve the competitiveness of ship repair enterprises, it is necessary to understand how to do this and how to influence the development of various external and internal factors of the enterprise. Moreover, a change in the factors affecting the competitiveness of ship repair enterprises cannot take place independently. Only a close economic relationship between the ship and the coast will ensure regional development.

An example of the functioning of the economic mechanism of interaction between the fleet (represented by Russian shipowners engaged in fishing) and the Norwegian coastal enterprises demonstrates the development of the Norwegian city of Kirkenes. Therefore, regional authorities in coastal regions need to form approaches to the spatial interaction of fleets and coastal enterprises, based on the theory and practice prevailing in market economy countries. For this, it is necessary to consider the evolutionary stages of the development of the theory of competitiveness.

3. Evolutionary development of the competitiveness theory

Competition is a factor and a desire to create not only the best offer on products, but also the best opportunities for its release. In the existing sector of the economy, as a rule, there is more than one economic entity wishing to offer a particular type of product or service. Practice shows that in order to increase the efficiency of one's own activities,

it is necessary to investigate, establish conformity and transform the factors of the internal environment of this economic entity.

Increasing competitiveness relative to other similar market actors is usually achieved through the innovative development of an enterprise, which can be directed to labor resources, to efficient use of economic results, to the careful and efficient use of material resources, to improve various elements of management systems, to develop and introduction of new technological processes of modern equipment, etc.

The historical experience of the formation of the principles of a market economy has shown that competitiveness is the most important factor in achieving a stable position in the market for each economic entity. However, it should be remembered that the rapid achievement of the desired results is impossible, it is necessary to understand that increasing competitiveness is a daily work that requires special attention from the managers of economic entities. As noted earlier, it is necessary to analyze, know the state of the internal factors of an economic entity, and understand to what extent and what factor should be influenced in order to increase overall competitiveness. Analysis of the factors, determining the direction of their improvement will allow to achieve the desired result.

The first theoretical statements about the nature of competition and competitiveness were formulated in the XVIII – XIX centuries and concerned the description of the mechanism of competition and competition, as well as linking the competitiveness of subjects of economic relations with such basic concepts of economic theory as product quality, price, and factors of production. Since the XX century, scientists began to pay attention to the non-price components of competitiveness and competition. The founders of this direction were J. Schumpeter and F.A. Hayek, representatives of the Austrian School of Economics (Hayek, 1999; Schumpeter, 1982).

J. Schumpeter characterizes competition as "the rivalry between the old and the new traditional production with innovations" (Vyazagov and Kilchukov, 2014). According to F.A. Hayek, competition is "the process by which people gain and impart knowledge" and only "most of the human benefits achieved are obtained through competition" (Hayek, 1999).

In market conditions, competition encourages rivals to adopt best practices for their own development. The experience of the development of Chinese companies has shown that by adopting technology from North Americans and Europeans, they were able to organize the production of competitive products practically from scratch in such industries as energy, transport and oil and gas engineering, shipbuilding, instrument engineering, automotive, etc.

The works of American scientists I. Ansoff and M. Porter (Dianne et al, 1993) contributed a significant part of the evolution of the competitiveness concept. M. Porter formulated a new approach to determining the competitiveness of enterprises, sectors of economies and countries. In his opinion, competitiveness should be dynamic, go beyond cost analysis and be based on innovation, striving to create products and services of unique quality, as well as a business environment conducive to investment and innovation around the economic sectors and individual enterprises (Porter, 2016).

The most important conclusion of the M. Porter concept is the need to take measures to ensure competitiveness both at the enterprise level and at the economic levels of the industry, the region and the country as a whole. The state can stimulate competition through its own state policy, reducing administrative barriers in economic activity, creating a favorable investment climate, and the entrepreneur must rely on himself.

The task of identifying the relationship between competitiveness and innovation, its basic factor, is devoted quite a lot of work. P. Geroski in his study tried to test this hypothesis. He found that the impact of innovation on the profitability and economic growth of firms is insignificant, but innovative firms are more flexible and better adapted to the changing business environment. However, innovative firms tend to be more competitive (Geroski, 1995).

Issues related to the competitiveness of industrial enterprises were discussed in the times of a planned economy, but due to the nature of economic management there was no competition between enterprises, as well as industries, therefore competitiveness was reduced to competitiveness at the product level. Since the end of the last century, domestic economic research has developed many different scientific provisions aimed at studying issues of competitiveness. Many works were related to the

study and improvement of issues of competitiveness of industrial enterprises during the transition to a market economy and the conditions of a market economy (Gurkov I.B., Mishin Yu.V., Zakharov A.N., Azoev G.L., Fatkhutdinov R .A. and others) (Azoev and Chelenkov, 2009; Gurkov, 2015; Zakharov and Zokin, 2018; Mishin, 1999; Mishin et al, 2016; Fatkhutdinov, 2000; 2001), the organization of competitive goods (Magomedov, 2002) was considered in other studies.

The stated theoretical insight, in our opinion, in the modern market economy loses its relevance. The last years of the development of a market economy and an approach to competitiveness are far from theoretical positions, and the protectionist and equity approach casts doubt on the postulates of a pure market economy and competitiveness as the main factor of its development. Among experts or scientists, there is no denial of competitiveness as an integrated approach to the efficiency of business structures.

4. Methods for assessing competitiveness

In modern economics, various approaches and theoretical concepts have been formed to determine the factors of the internal and external environment that have a significant impact on the formation of enterprise competitiveness. The best-known approach was formed and developed by French scientists - economists A. Olivier, A. Dianne and R. Ursa (Dianne et al, 1993; Peters, 2006). They proposed a theoretical model that was based on the use of eight factors of the internal environment of the enterprise.

These factors included: quality, price, financial condition of an economic entity, strategy of moving goods to the market, possibilities for servicing products before sale and subsequent maintenance of products after the sale, interaction of the economic entity with various external market actors, namely: local and state authorities, mass media and various public organizations capable of influencing the activity of an economic entity.

Using the actual results of the enterprise, according to these factors, a polygon of competitiveness for each business structure can be constructed and compared to each other. This model may contain not only specific indicators, but also estimates of experts interviewed on ranking scores of indicators. It is most popular with domestic specialists (Shushkin and Zabaeva, 2006).

The other model takes into account the following factors for the enterprise: products, production activities, financial position, marketing and innovation activities of the enterprise. To construct a polygon in this model, the following indicators must be used:

- with respect to products - indicators of the compliance of goods and services with national and international standards, industry standards, and legislative acts;
- in relation to the production process - capital productivity, return on assets, labor productivity;
- in relation to finance - solvency and liquidity ratios;
- in relation to marketing - sales profitability, capacity utilization, advertising efficiency and sales promotion properties; in relation to innovation - the cost of innovation, the savings from the introduction of rationalization proposals (Shushkin and Zabaeva, 2006).

For the above factors, indicators for each enterprise are calculated and a competitiveness polygon is constructed. Private indicators in areas can be used to calculate the integral index of competitiveness, which will be a combination of them. The integral indicator is compared with the average indicators for the industry, various enterprises, and is also used in dynamics to determine the trend.

The evaluation of indicators forming the competitiveness of an industrial enterprise, proposed by Golkov A.S. and one of the authors of this article, deserves attention (Golkov and Khrapov, 2012). Methodology is proposed to form indicators that determine competitiveness, consisting of sections:

- main (market share of services),
- operational (performance indicators of production activity and use of equipment),
- financial (indicators of debt servicing),
- investment and innovation activities (age and technical assessment of technological equipment, labor productivity), which are compiled using technical and economic indicators of the economic entity in a certain period of time. The data obtained can be used to analyze and assess the factors of the enterprise's economic activities and compare them with the indicators that

have been achieved by a competitor in the market for goods or services.

Analyzing and comparing these indicators, the management of an enterprise can form an innovation development program aimed at raising low factors and preserving factors that have reached high levels. However, this technique has a significant drawback, which consists in the fact that it is very difficult to obtain correct technical and economic indicators. As a rule, business entities hide behind trade secrets and hide true indicators. In this case, it is difficult to use this method and its content is of a speculative nature.

The lack of accurate technical and economic indicators does not allow a more reliable assessment of the competitiveness of any business entity and this can significantly affect the construction of economic mechanisms for spatial interaction between the subjects of marine economic activity, the purpose of which is this study. To assess the competitiveness of regional machine-building enterprises engaged in ship repair, the author developed an original method that does not use accurate technical and economic results, but uses quality indicators, which are formed by the opinion of experts.

5. The author's methodology for assessing the competitiveness of ship repair enterprises

Based on the existing theoretical and methodological aspects of the formation of the scientific concept of competition, the study of the assessment of the current state of ship repair enterprises in the Murmansk region allows the following conclusion. To ensure their competitive position at least in the domestic market of the region, first of all it is important to rely on the existing internal factors of the ship-repair enterprise, and secondly it is necessary to search for factors that will ensure the innovative development of enterprises in order to increase their competitiveness. The modern period of development of the external environment requires ship repair enterprises to develop a development strategy taking into account the forecast of market demand, which will reduce the risks of external impact and achieve competitiveness in the market. In our opinion, the concept of competitiveness of a machine-building enterprise engaged in ship repair includes price, ship repair terms, the ability to perform complex repairs, as well as its ability to adapt to market needs and the requirements of shipowning companies. In accordance with international experience, a competitive ship

repair enterprise should have the following qualities:

- Ability to timely adapt to changes in external factors;
- Be receptive to market prices;
- Perform repairs at the optimum time;
- Implement innovations in a timely manner;
- Effectively use internal resources.

In the operation of the enterprise, the management must constantly engage in improving its competitiveness. However, this work should be focused on certain factors that are worse at this enterprise than of competitors. Proper assessment and timely impact on them can allow the ship repair enterprise to increase its own competitiveness in the market of ship repair services. For these purposes, the author

developed a methodology for assessing the competitiveness of ship repair enterprises using quality indicators (Melkovskaya, 2018; Turchaninova and Khrapov, 2017; Khrapov and Turchaninova, 1982). It contains a questionnaire for a qualitative expert assessment of production and financial indicators, which can be used to assess and form indicators of the competitiveness of a given business entity. This form can be used to survey different levels of specialists from both ship repair and shipowner enterprises.

Results and Discussion

The study was conducted at ship repair enterprises of the Murmansk region among managers and leading specialists of the main production units. The results of the survey and questionnaires are given to the average indicators and are given below in tabular form.

Table 1. The competitiveness assessment of private ship repair enterprises of the Murmansk region

No	Name of the ship repair enterprise	Competitiveness Indicators									
		Sevremmash LLC	Diamond LLC	Albatros LLC	Techtra LLC	Murmansk Ship Repair Company LLC	Module LLC	A.L.E.K. JSC	Reserve LLC	SevTekhNord LLC	Barentsmore Service LLC
1	Enterprise Value	1.3	2.3	4.0	1.0	8.0	4.6	3.3	5.0	4.2	1.6
2	Image cost	3.0	3.6	6.6	0.6	8.6	4.6	0.3	7.3	4.6	4.3
3	Volume of marketable products	2.6	4.0	6.6	0.6	9.3	4.0	0.6	6.0	4.0	3.0
4	Price for products and services	4.3	4.6	5.6	0.6	9.3	6.0	0.6	6.0	6.0	2.0
5	The complexity of the work in the repair of the vessel	2.6	4.3	6.3	2.6	9.6	5.3	2.3	5.6	5.3	2.6
6	The effectiveness of the management system during ship repair works	6.0	6.0	7.6	2.0	6.6	5.3	0.33	7.6	5.3	4.0
7	Attractiveness of production for customers	3.0	5.3	5.3	1.6	8.3	6.6	2.3	7.3	6.5	4.6
8	Enterprise share in the domestic market	2.0	2.6	6.0	0.6	6.0	3.3	0.3	3.3	3.2	1.6
9	Product profitability	2.0	4.3	4.3	2.6	4.3	5.0	0.0	4.3	3.2	5.0
10	Availability of borrowed capital and dependence of the enterprise on it	0.3	0.3	0.3	0.3	2.0	0.3	0.3	0.3	0.3	0.3
11	Marketing management	2.0	3.3	3.3	1.3	4.6	5.0	1.6	4.3	4.6	0.3
12	Enterprise Liquidity	2.0	2.3	3.3	0.0	4.6	3.3	0.0	2.3	3.3	1.3

13	Quality of services and products	5.0	7.0	7.0	2.6	6.3	6.6	0.3	8.3	6.2	4.0
14	Quality of labor resources	5.0	5.0	6.0	2.6	7.0	5.3	1.6	8.0	4.6	4.3
15	The level of automation and mechanization of production processes	2.6	2.6	2.6	2.6	2.6	2.3	1.3	2.6	2.3	2.3
16	R & D expenditure	1.3	1.3	1.3	0.0	2.0	1.3	0.0	1.6	1.2	0.0
17	The introduction of new technologies in the repair of ships	1.6	1.6	1.6	0.0	2.0	1.3	0.0	1.3	1.1	0.0
18	Post-repair warranty service	5.0	4.3	5.0	1.1	5.0	4.3	0.0	4.6	4.2	1.1
	The final competitiveness assessment of the enterprise	51.6	64.7	82.7	22.7	106.1	74.4	15.13	85.7	70.1	42.3

Each indicator was estimated in the range from 0 to 10. According to the research conducted at private ship-repair enterprises of the Kola Peninsula, results were obtained with their subsequent ranking. These results made it possible to determine the position of each ship repair enterprise in the market of ship repair services, but the most important thing is to compare the quality indicators of the competitiveness assessment for each ship repair enterprise.

Experimental approbation of this methodology at the ship-repair enterprises of the Murmansk region made it possible to draw conclusions about its realism.

According to the results of our study, Murmansk Ship Repair Company LLC received 101.1 points. This ship repair enterprise is characterized as complex, able to offer the customer a full range of ship repair work on the vessel. The customer at the enterprise can repair the ship on a turnkey basis. According to experts of Murmansk Ship Repair Company LLC, it provides with high accuracy the deadlines for fulfilling orders, determining the price and volume of repairs, which allows forming the highest image among the enterprises studied and the high market price of the enterprise as a whole. Practice has shown that this ship repair enterprise in the Murmansk region is especially attractive to the customer. The analysis of the remaining indicators allows us to conclude that this enterprise occupies a leading position in the market, due to its own competitive advantages.

The rating assessment obtained as a result of research by the ship repair enterprise Reserve LLC allowed to put it in second place. This ship-repair enterprise, according to experts, occupies

a leading position in terms of the quality of services and products (8.3 points), which could be provided by qualified specialists in ship-repair specialties, therefore the quality indicator of labor resources is (8.0 points). Two ship repair enterprises, Reserve LLC and Albatross LLC, according to experts, have the highest performance indicators of the management system of their enterprises - 7.6 points. An effective management system is aimed at fulfilling the main purpose of the ship-repair enterprise, this is the provision of the deadlines for the fulfillment of orders. Due to this, these enterprises formed a circle of "their" customers. According to the survey results, leading enterprises ensure the profitability of their own production, they try to do without debt capital in economic and production activities and therefore do not depend on it.

According to the results of the survey, the ship-repair enterprise Albatros LLC received 82.7 rating points. Practice shows that this is quite a "strong" enterprise in the market of ship repair services in the Murmansk region. The remaining places, according to their rating points, were distributed by the remaining ship repair enterprises.

According to the results of the research, the ship repair enterprises of Barentsmor Service LLC and Tekhtra LLC have low competitiveness indicators compared to other ship repair enterprises. However, these companies are part of the leading fishing companies, LLC North-West Fishing Company and LLC Robinson. Based on this, we can conclude that these ship-repair enterprises, working as part of fishing companies, are not aimed at increasing their own competitiveness, since their main task is to ensure the needs of the fleet without taking into

account the interest of the ship-repair companies themselves. As for the company "AL.E.K.", its indicators can characterize it as an enterprise moving towards bankruptcy.

The experts' answers to the research at the ship repair enterprises allow to draw the following conclusions: all ship repair enterprises do not invest in the development of R & D, therefore the enterprises do not have proposals on the use and introduction of new technological processes; new systems in the management of production processes; do not use information technology; do not increase the level of mechanization of production processes. In our opinion, this current situation is due to the lack of solutions to the key issues previously outlined in the article.

Having received the results of the study, each head of the ship repair enterprise can concentrate on improving certain competitiveness indicators, which will increase the competitiveness of the enterprise as a whole. For shipowners, the use of this technique can open up horizons for highly efficient spatial interaction with specific domestic ship repair enterprises.

A comprehensive assessment of the quality indicators of competitiveness on the part of ship repair enterprises and shipowners allows creating conditions for economic mechanisms for the spatial interaction of economic entities within the regional economy.

Conclusion

The proposed author's methodology for assessing the competitiveness of ship-repair enterprises and surveys of specific ship-repair enterprises of the Murmansk region conducted on its basis make it possible to comprehensively assess their level of competitiveness in the domestic regional market of ship-repair services. The results obtained give a more complete picture of the presence of factors of the internal potential of the investigated ship repair enterprises. The impact on these internal factors, their activation, increase the competitiveness of ship repair enterprises. This circumstance and the growth of their attractiveness for domestic shipowners will contribute to an increase in the synergy effect at the regional level.

In order to increase the competitiveness of ship repair enterprises of the Murmansk region in the foreign market, in our opinion, it is necessary to conduct additional research with deeper consideration of issues of technical, technological, information and personnel

potential. Knowledge of the problems on this set of issues will provide an opportunity to formulate specific areas of innovative development, aimed at improving the competitiveness of a particular ship repair enterprise.

The results of the research among Murmansk ship-repair enterprises, the implementation of recommendations formulated in earlier papers (Melkovskaya, 2018; Turchaninova and Khrapov, 2017; Khrapov and Turchaninova, 1982), make it possible to increase the rating of coastal enterprises. This, in turn, will contribute to an increase in ship repair in Murmansk and an increase in gross regional product. Any seaside region of Russia aspires to this result, since it is the basis of socio-economic development.

References

- Azoev, G. L., Chelenkov, A. P. (2009). Competitive advantages of the company. Moscow: OJSC Printing house "News".
- Andreev, V. N. (2010). Conceptual model of managing the creation and development of competitive machine-building enterprises. *Russian Journal of Entrepreneurship* 7:2(163):106-111.
- Decree of the Government of the Russian Federation of April 15, 2014 No. 328 "On Approval of the State Program of the Russian Federation "Development of Industry and Increasing Its Competitiveness". (2014). Available at: http://consultant.ru//document/cons_dos_LAW_162176/ (accessed 05.02.2018). The Resolution was adopted to develop the order of the Government of the Russian Federation of December 27, 2012 N 2539-p (Collected Legislation of the Russian Federation, 2012, N 53, Art. 8043);
- Dianne, A., Olivier, A., Ursa, R. (1993). *Market Academy: Marketing*. Moscow; Economics.
- Fatkhutdinov, R. A. (2001). Competitiveness of Russia. *Society and Economy* 10-11:104.
- Fatkhutdinov, R. A. (2000). *Competitiveness Management. Standards and Quality* 10.
- Gerasimov, A. N., Gromov, E. I., Dyachenko, E. G. (2013). *Strategic management of socio-economic development of the North Caucasus Federal District*. Stavropol; AGRUS.
- Geroski, P. A. (1995). *Innovation and competitive*. LBS Economic department working papers 159:54.
- Golkov, A. S., Khrapov, V. E. (2012). *Improving the competitiveness of domestic oil and gas engineering: a monograph*. Murmansk; MAEU.

- Gurkov, I., Avraamova, E., Tubalov, V. (2015). Competitiveness and innovativeness of Russian industrial enterprises: interconnections and influence of state economic policy (according to the results of a mass survey of industrial managers). *Voprosy Ekonomiki* 2:40.
1. Hayek, F. A. (1999). *Cognition, competition and freedom*. Saint Petersburg; Pnema.
- Khrapov, V. E., Turchaninova, T. V. (2015). Mechanisms of spatial interaction of enterprises with single and small-scale production in the coastal region. Monograph, Apatity; KSC RAS.
- Karsuntseva, O. V. (2018). State machine-building complex in Russia. Available at: <http://be5.biz/ekonomika1/r2011/2226.htm> (accessed 03/05/18).
- Kirsanov, M. Yu. (2015). The concept and essence of the national innovation system of the Russian Federation. *Modern problems of science and education* 1-1(S):623.
- Magomedov, Sh. Sh., Yakubova, E. V. (2002). Methodology for assessing the competitiveness of goods using an electronic processor EXCEL FOR WINDOWS. Stavropol: Stavropolservis School.
- Melkovskaya, K. R. (2018). Problems of the functioning of Russian machine-building enterprises. Available at: <http://www.uecs.ru/uecs-36-122011/item/928-2011-12-27-11-47-15> (accessed 03/20/2018).
- Mishin, Yu. V. (1999). The components of competitiveness: Recommendations for developing a strategy for the development of production structures. *Risk* 1:41–45.
- Mishin, Yu. V., Sukharev, V. B., Kosterev, N. B. (2016). Methodological issues of forming an integrated assessment of the competitiveness of enterprises and organizations of high-tech industries (for example, aircraft manufacturing). *Microeconomics* 5:13-19.
- Sergeev, A. A. (2014). Mechanical engineering competitiveness: reality 6, opportunities and prospects. *Economic sciences* 117:67-70.
- Schumpeter, J. (1982). *Theory of Economic Development*. Moscow: Progress.
- Shushkin, M. A., Zabaeva, M. N. (2006). Assessment of competitiveness of enterprises with divisional management structure. *Management in Russia and abroad* 1:58-63.
- Strategy for the socio-economic development of the Murmansk region until 2025 (2018). Available at: http://www.csr-nw.ru/files/csr/file_category_169.pdf (accessed 18 March 2018)
- Polovinkin, V. N., Fomichev, A. B. (2018). The current state and problems of development of domestic engineering. Available at: <http://www.proatom.ru/modules.php?name=News&file=article&sid=4639> (accessed 02/27/18).
- Porter, M. (2016). *International Competition*. Moscow; Alpina Publisher.
- Peters, T., Watman, R. V. (1996). *In search of effective management*. Moscow; Progress.
- Tatarskikh, B. Ya., Dubrovina, N. A. (2018). Economic issues of development of domestic engineering. Available at: http://www.bmpravo.ru/show_stat.php?stat=799 (appeal date 01/24/18).
- Turchaninova, T. V., Khrapov, V. E. (2017). Search for an effective mechanism for the spatial innovation development of engineering enterprises of the Arctic seaside region. Apatity; KSC RAS.
- Vasiliev, A. M. (2016). The North and the Arctic in the new paradigm of world development: current problems, trends and prospects. Monograph, Publishing House of the Institute of Economic Problems named after GP. Luzin KSC RAS; Apatity.
- Vyazagov, F. R., Kilchukov, Z. Kh. (2014). Conditions for sustainable and balanced development of industrial complex industries in modern conditions. *Economy and Entrepreneurship* 1(11):478-482.
- Zakharov, A. N., Zokin, A. A. (2018). Enterprise competitiveness: essence, methods, assessments and mechanisms for increasing. Available at: http://www.logistics.ru/scm/9/2/i20_64.htm (accessed 03/20/2018).