Competency-based approach to the development of a regional anti-crisis strategy based on the development of transport and logistics infrastructure

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Abstract. The purpose of this study is to develop a regional development strategy in the conditions of overcoming the crisis on the basis of a competency-based approach, taking into account the existing transport and logistics infrastructure. Theoretical studies were carried out using methods of system analysis and generalization of existing scientific developments in the field of development of regions and their territories. Methods of observation and statistical analysis were used to determine the dynamics of the development of indicators, assess the level of influence of crisis phenomena on the gross regional product, and also to identify the competitive advantages of a particular region. As a result of the study, the following results were obtained: - an analysis of the state of the regional economy revealed the conditions that impede its further progressive development; - the use of a competency-based approach made it possible to determine the unique regional advantages peculiar only to the Rostov Region due to the fact that they act superior to other regions and allow its enterprises to maintain a stable position in the target markets; - based on the competitive advantage system, the main sectors of the economy of the studied region are identified, which, thanks to the multiplier effect, are potentially capable of ensuring its sustainable development in the conditions of overcoming the crisis caused by the pandemic of a new coronavirus infection.

1. Introduction

The modern world economy is experiencing an unprecedented crisis since the Great Depression, which has already received the name of “Great Self-isolation” associated with the spread of a new coronavirus infection. Until the end of the COVID-19 pandemic and the restoration of enterprises in all industries, it is impossible to make a reliable forecast for the development of both the global and regional economies. Social distancing, self-isolation, and travel restrictions have led to a reduction in performance in all sectors of the economy [1-5].

In addition to the spread of COVID-19, a serious catalyst for the development of crisis phenomena in the world economy is the fall in oil demand, which caused the crisis of overproduction.

The IMF announced the amount of expected financial assistance to developing countries at $ 2.5 million. The World Bank has estimated a decrease in economic growth for Southeast Asia, including China, from 5.8 to 2.1% in the case of a positive development of the situation, and with a possible deterioration, to minus 0.5%. According to IMF forecasts, a recession in 2020 will be recorded in 157 of 194 countries. The US economy will fall by 5.9%, the eurozone - by 7.5%, and growth in China will slow to 1.2%.
Regarding Russian economy, the Central Bank of the Russian Federation in the first official forecast for the pandemic period estimated the potential drop in GDP in 2020 at 4-6%, and further post-crisis economic growth at 2.8-4.8% in 2021 and 1.5 –3.5% in 2022.

Given the prevailing conditions for the development of the national economy, the subject of research was the development of regions in the new socio-economic conditions using the example of the Rostov Region.

The study showed the need to revise the approved regional development strategy in the face of new challenges using a competency-based approach based on the identification and use of key advantages of the area that cannot be reproduced in others.

2. Methods and materials

In the course of the study, the following methods were used: categorical, comparative analysis and synthesis based on the integration of theories and concepts, scientific developments on the problems of regional development.

A categorical analysis was used to identify the content of the concept of competence, a comparative analysis was used to compare the development indicators of the region over the past decades, and synthesis was used to summarize and identify patterns of development of a particular region.

The study is based on official statistics approved by the Government of the Rostov Region on the regional development strategy, materials contained in articles of Russian and foreign economists, periodicals [6-9].

3. Research results

3.1. Fundamentals of the socio-economic development of the region

The fundamental document of long-term management at the regional level is the Strategy for socio-economic development of the Rostov Region for the period until 2030. This document has been developed taking into account the requirements of federal legislation and regulatory legal acts of the subject of the federation, and is also based on federal and regional strategic planning documents in various industries.

This document defines two types of goals. The first of which are dynamic goals focused on a quantitative change in indicators. The second type of goals is represented by structural goals that imply qualitative changes in the socio-economic activity of the region, transforming the structure of objects of influence and eliminating imbalances in the development of industries.

However, despite the fact that the regional development strategy is determined by the “Challenge-Response” methodological scheme, which involves the use of variable technologies and tools to overcome the adverse effects of external influences, in the face of a disruption of the market mechanism and the forced shutdown of many enterprises in order to combat the pandemic, long-term prospects for the development of the region should be reviewed and adjusted.

3.2. Project of socio-economic development of the Rostov Region based on the competency-based approach

Under the current conditions, as part of the revision of the regional development strategy, one of the options for regional economic policy may be an unbalanced growth strategy involving support for the most promising sectors and enterprises. Within the framework of this approach, it is supposed to determine the unique competitive advantages of the region (competencies), which, when implemented in promising sectors, will provide the Rostov Region with a stable leading position in the market (Figure 1).
As a result of the analysis of the socio-economic development of the Rostov Region, core competencies were a unique position, favorable climatic conditions, and the availability of resources, on the basis of which a developed transport infrastructure, energy surplus of the region and consumer markets were formed.

Based on the identified competencies, priority development sectors are identified in the work.

4. Discussion

The current situation has accelerated the transition of the business to a distributed model in which employees work remotely using virtual substitutes for meetings, presentations, and presence. Some analysts suggest that after the end of the coronavirus pandemic, “a model of sustainable business will be based on proximity to the country”. This means that the country is becoming the main and almost the only pivotal partner strengthening its influence on the economy as a whole, and this, in turn, can seriously change the socio-economic system in Russia.

The stagnation of the Russian economy as a whole will entail a reduction in gross regional product and a review of regional long-term and medium-term development strategies.

However, not all sectors show a decline in performance. A number of them are characterized by an increase in the production index compared to the same period in 2019. For example, among the organizations interviewed by state statistics agencies engaged in mining and manufacturing (about 4 thousand enterprises participated in the survey in April 2020), approximately 10% of managers consider the economic situation in their organizations favorable, about 70% - satisfactory. It is estimated that about 20-25% of the respondents from mining and manufacturing industries are optimistic about the near future.

The main sectors affected by the measures taken to counteract the coronavirus infection are:
- auto and air transportation;
- tourism;
- hotel and restaurant business;
- household services to the population;
- fitness activities;
- organization of cultural and entertainment events;
- and etc.

However, there are industries that have benefited from the coronavirus pandemic:
- online delivery of food and animal feed;
- production and sale of medical goods;
- sale of disinfectants, as well as cleaning and washing products;
- programs and applications for the ability to work remotely (video and web conferencing, online services, etc.);
- programs and applications for online entertainment, etc.

A significant part of the financial industry can also find positive aspects for itself in today's development.

It should be noted that the forecast for the development of individual regions can differ significantly and it is rather difficult to predict the dynamics of regional products with a high degree of probability. Talking about the Rostov Region, the crisis of 1998 led to a smaller decrease in gross product than the crisis of 2008 (-3.3 and -10.8%, respectively) (Figure 2).

![Figure 2. Dynamics of gross regional product (as a percentage of the previous year).](image)

A study of the state of the regional economy revealed a number of trends that impede the further progressive development of the Rostov Region.

One of the key problems of the socio-economic development of the region at present is the uneven provision of its municipalities, primarily because of the unsatisfactory level of transport and engineering infrastructure. This is due to the uneven distribution of resources within the region, which led to differences in the infrastructure arrangement of the territories, which, of course, reduces investment incentives, inhibits socio-economic development, and leads to serious negative consequences in the form of violations of the life support systems of municipalities and rural settlements that make up the region.

An objective factor hindering the development of the Rostov Region and being a potential obstacle to stabilizing the economy and overcoming the crisis is the tendency for a decrease in the industrial potential in some sectors, which causes imbalances in their growth rates. According to the territorial body of the Federal State Statistics Service, depreciation of fixed assets in the manufacturing industry is more than 40%. The problem of the loss of personnel potential of industrial enterprises is also growing, which can lead to an unstable social situation in the industrial centers of the region.

There is a tendency of a low degree of innovation in industrial production with a high scientific and technical potential of the region, which is manifested in a small number of innovatively active enterprises and a low share of innovative products in the total volume of a regional product. This dissonance between the development and practical implementation of scientific ideas is explained by the imperfection of the regional innovation system, which is designed to create the conditions for translating the achievements of science into production processes and, as a result, the final products, as well as ensure the concentration of investment and intellectual resources in breakthrough areas.

Another obstacle to overcoming the crisis will be increased competition, primarily between entities,
for the domestic market. In the future, under conditions of import substitution, competition on the specialization markets of the Rostov Region will increase on a national scale not only due to the activities of enterprises in the Don region, but also in neighboring regions due to competition with the Krasnodar and Stavropol territories, Volgograd and Astrakhan regions.

In addition, the problem of competition for limited resources at the level of constituent entities of the Russian Federation will become more acute, when regions will seek to create attractive, unique conditions for attracting investments to their territories from all sources. At the same time, the restrictions (shutdown) of the work of many enterprises associated with the spread of coronavirus infection will significantly reduce the rate of economic growth and development, therefore, reduce investment attractiveness, which will adversely affect the further development of small and medium-sized businesses. In the long run, this situation may lead to a change in the current organizational, technological and socio-economic system of the region.

According to the Investment Declaration of the Rostov Region, the main areas of investment policy in the region are the development of the following industries:
- manufacturing;
- animal husbandry;
- production and processing of agricultural products;
- fisheries industry;
- greenhouse facilities;
- production of renewable energy sources in the agricultural sector (bioenergy);
- development of the construction industry (including housing construction);
- creation of objects of social, engineering and transport infrastructures;
- mining;
- transport;
- retail.

However, in the current realities, the regions will have to reconsider their development strategy. In a crisis, one of the possible options for regional economic policy may be a strategy of unbalanced growth. The essence of this policy is to accumulate available resources to support the most promising sectors and enterprises of the region. Those that have more ability to hold markets. It is necessary to search for new “growth points”, adjust priorities, identify unique internal competitive advantages that will ensure sustainable development of the region and the solution of socio-economic problems, and their transformation into key competencies.

A competency-based approach to the development of the region involves the search for competitive advantages of the region, which would reflect the uniqueness of its economic system and could not be exactly reproduced by other entities. Strategizing the development strategy based on these advantages will allow organizations in the Rostov Region to occupy leading positions in the domestic market.

Having a unique transport infrastructure, the Don region serves as a link to the leading international and interregional transport corridors. This advantage, along with its favorable geographical position, puts the Rostov Region in the center of the largest post-Soviet markets, which, along with convenient logistics, provides access to 170 million potential buyers.

Thus, the region’s consumer market, being one of the largest in the south of the country, is determined by the territorial concentration of demand for consumer goods and services and the proximity of transport and storage infrastructure, which is characterized by the selectivity of its distribution.

Along with the above, the main competitive advantages of the Rostov Region are its economic and geographical location, climatic conditions, demographic potential and population structure, specialization, economic structure, and the achieved level of socio-economic development.

Combined with a high level of development of transport infrastructure, energy surplus in the region, and significant potential of the regional consumer market, these competencies contribute to the priority development of such sectors of the regional economy as transport, agribusiness, in particular,
agriculture, engineering, trade, and services (table 1).

**Table 1. Competencies of the Rostov Region.**

| Competencies | Agriculture | Agribusiness: Plant growing | Animal husbandry | Food industry |
|--------------|-------------|-----------------------------|------------------|--------------|
| Transport    | Providing access to settlements of the region (including remote ones) to the main transport communications. | Preservation and reproduction of soil fertility due to implementation of agrotechnical, agrochemical, phytosanitary, and reclamation measures. | Construction of new and reconstruction of existing livestock enterprises; the use of high-tech equipment in animal keeping and milking systems. | Organization of a system for processing agricultural raw materials produced in the region. |
|              | Uninterrupted service of transit cargo flows, including international ones. | Rational crop rotation using highly productive varieties of cultivated crops. Increased productivity by increasing the quantity and improving the quality of applied fertilizers. | The use of highly productive stud animal breeds. | Production of specialized food products for various population groups. |
|              | Increase in the commercial speed of cargo transportation. | Improving the technical and technological level of development of the agricultural sector in the region; introduction of high-performance technologies of cultivating crops, resource conservation; use of productive and resource-saving equipment. | The use of the biological potential of the industry and the application of advanced domestic and foreign intensive technologies in the production of livestock products based on the implementation of scientific and technological progress | Production of high quality food for preschoolers and school children. |
|              | Creation of an extensive network of terminal and logistics complexes of both federal and regional significance and ensuring their competitiveness in the domestic market. | Introduction of new management methods for agricultural enterprises based on agricultural and consumer cooperation. | Restoring the local stud network system based on hybridization and breeding. Recreation of stations for breeding and artificial insemination, livestock accounting systems; | Promotion of products of Don manufacturers in retail chains. |
Mechanical engineering
- Modernization on an innovative basis of existing enterprises in the region and the creation of new industries.
- Introduction of new resource-saving production technologies.
- Development of human resource potential, attracting qualified specialists.
- Creating infrastructure conditions for the modernization of existing enterprises in the region.

Trade and services
- Development of a retail network of modern formats, including in small and remote settlements.
- Infrastructure support for the development of small businesses.
- Optimization of assortment policy of federal and regional distribution networks.
- Development and support of online trading.
- Development of high-tech services in the financial and insurance sectors, medicine, education, etc.

Tourism
- Development of tourism infrastructure.
- Popularization of the Don region as one of the directions of various types of tourism (gastronomic, ethnographic, medical, etc.).
- Implementation of marketing projects promoting the Don tourism product to the market.
- Implementation of engineering projects for the creation, transformation, restoration, and support.

In the field of transport development, as one of the main industries ensuring the uninterrupted functioning of enterprises in the region, the main areas of development should be ensuring access to transport communications of all municipalities of the Rostov Region, efficient servicing of regional and international freight flows, and after full restoration of freight and passenger traffic, expansion of the transport network through the construction of a high-speed railway Moscow - Rostov-on-Don - Krasnodar – Sochi, and a number of intraregional railway and automobile roads. Another promising area in the development of the industry should be the creation of a network of large transport and logistics complexes equipped with modern machinery and equipment, providing a distribution system and an increase in freight traffic.

Based on the dynamics of the development of the transport and logistics complex, the priorities of economic development for the Rostov Region will be the realization of competitive advantages in the agricultural sector, the modernization of engineering, the development of trade and tourism.

One of the key sectors of the Don region is agribusiness, in particular, its second sector - agriculture, which allows the region to be at the third place in the domestic ranking in terms of agricultural production and more than 12% of gross value added in the structure of GRP.

That is why under the prevailing conditions, the objective advantages of the region should be fully used in order to occupy a dominant position in the domestic market in times of crisis and a decline in imports of agricultural products.

The implementation of this task should be promoted by orientation to intensive forms of agriculture (increasing the area and optimizing the structure of sown areas, the use of modern agricultural technologies, the revival and development of Don seed production) [10-13].

One of the priority areas for the development of the agricultural sector in the region is its third area, in particular, industrial processing of crop products and the sale of finished products (flour, cereal, confectionery industries, production of vegetable oils, etc.)

In addition, the positive dynamics of the gross harvest of vegetables and viticulture products in 2019, as well as the stabilization and gradual increase in the pace of horticulture development, suggest providing raw materials for the food processing subcomplex of agribusiness in the region and for the production of juices, canning fruits and vegetables, drinks, etc. However, to ensure processing...
industries high-quality raw materials, it is necessary to simultaneously develop the infrastructure for transportation and storage, including cold treatment and freezing of perishable raw materials.

Animal husbandry is a dynamically developing industry in the Rostov Region, the development vector of which should be not only poultry, but also meat and dairy cattle, pig, sheep and traditional horse breeding. A significant share and leading role in this industry belongs to large farms, the potential of which allows introducing new methods and technologies for breeding, raising and keeping animals, increasing the profitability of production, as well as building close mutually beneficial contacts with the processing complex. In addition, the processing of sheep, pigs, cattle skins and the production of leather, as well as endocrine-enzyme raw materials, can become an auxiliary impulse for the development of animal husbandry.

The priority area is the promising fishing industry, which has glorified the Don region. Therefore, it is necessary to stimulate the development of one of its main areas - commercial fish cultivation, including sturgeon, trout, catfish, etc. with the aim of its subsequent processing and development of fish production.

The introduction of innovative technologies that provide in-depth processing of agricultural raw materials, non-waste production will allow regional producers to increase competitiveness and take their rightful place in the domestic and enter the international food markets, including with their branded products “Made on the Don”.

The regional development of agribusiness should also be facilitated by the modernization and development of agricultural machinery based on modern advances in engineering and technology.

In addition, one of the strategic areas of the region’s sustainable development is transport and energy engineering, which have an established production base, cooperative ties, formed sales markets, qualified engineering and design personnel, as well as other necessary conditions for their further development.

At the same time, there is a need to develop our own, regional industrial policy for the innovative development of large machine-building enterprises and to overcome the limitations associated with financial problems in a number of leading enterprises in the industry.

Another promising area for the development of the Rostov Region may be the development of high-tech types of services, in particular, online. The development of online services has proven its relevance in terms of self-isolation and the inability to get the usual off-line services.

Many financial and insurance organizations already provide remote services. Online medical and educational services were of particular relevance during the pandemic. The latter is implemented both in the form of distance secondary and higher education, and in the form of online trainings and webinars.

In addition to the above forms, the development of remote access services will be in demand in the public administration system, in the areas of financial and business services, in the field of R&D, trade, as well as in the tourism sector [14, 15].

In the conditions of temporary interruption of flights to other countries, domestic tourism may become an alternative, for the development of which considerable potential has been accumulated in the region, focused on the demand of tourists from other regions of the country. Among the promising areas for the development of domestic tourism in the region are business tourism, gastronomic tours, ethnic tours, agricultural and medical tourism, for the development of which, on the principles of sustainable growth, the region has all the resources [16, 17].

The development of transport and logistics infrastructure, which includes online services and a delivery system based on reducing links and distribution costs, should be fundamental to overcome the consequences of the Great Self-isolation.

5. Conclusion
In the course of the study, the following directions for the development of the region were identified in order to overcome the crisis consequences:
1. Based on the proposed model of core competencies, the necessity of developing key industries that
will ensure the sustainable growth of a regional product in a crisis period is substantiated. Such industries can be considered: transport, all three areas of agribusiness in the region (in particular, agriculture), food processing industry, engineering, trade and services, tourism.

2. The basis for the development of the regional economy should be the further development of the transport and logistics infrastructure based on the transformation of the main transport communications, efficient servicing of cargo and passenger flows, and the creation of a network of transport and logistics complexes.

3. In order to ensure sustainable socio-economic development of the region, support and stimulation of the development of all industries included in the agricultural sector are necessary.

3a. Priority areas of agricultural development have been identified, which include supporting their own projects in the field of genetics, breeding, bioengineering and bioenergy, developing and using new high-performance and resource-saving technologies, preserving and reproducing soil fertility as the main means of production and national wealth of the Rostov Region, increasing agricultural productivity cultures, the development of vegetable growing, fruit growing, viticulture, the restoration of the large-scale stock-breeding system, the further effective development of the poultry and fishery industry.

3b. One of the key industries in the structure of agribusiness is the food processing industry, which includes the meat, dairy, processing of poultry, fish, grain, vegetables and fruits, refrigeration and other industries, which are strategically important and significant in crisis times and not only, since they provide national food security. The most important areas for the development of this sphere should be the implementation of regional projects for the production of food products that meet the requirements of modern networked trade formats, an increase in the share of regional commodity producers in the national food market, and an increase in the technical and technological level of processing industries.

3c. Priority areas for the development of the regional engineering industry are identified. To maintain a leading position in the domestic and world markets, one of the main ways of developing the industry should be the modernization of existing enterprises on an innovative basis in conjunction with the creation of new industries, including with foreign participation. Improving the competitiveness of the industry should be based on the use of new technologies and production methods. In the context of a reduction in foreign contacts, one of the main ways of development of mechanical engineering in the Rostov Region should be to stimulate domestic demand for industry products.

4. The development of the modern consumer market determines the conditions for the functioning of the product distribution system, which are built on reducing links and lowering distribution costs. With the closure of most non-food stores, online trading comes to the forefront in the development of circulation. In addition to the transition of trade to a contactless service system, in order to optimize the sphere of commodity circulation, it is necessary to rationalize the assortment of federal and regional networks; provide infrastructure support for the development of small businesses. Besides, within the framework of reducing the number of levels of the goods distribution system, in the future it is advisable to create integrated regional associations uniting agricultural enterprises, processors, and infrastructures on mutually beneficial conditions, the principles of equality and business cooperation.

5. The development of Don tourism as an additional area that increases the attractiveness of the region among investors and has significant potential involves the creation of a developed tourism infrastructure; stimulating the development of new promising areas such as water tourism, ecotours, health tourism, ethnographic, agricultural tourism, etc.

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