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Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N° 19

Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45



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Opción, Año 35, Especial No.19 (2019): 505-533
ISSN 1012-1587/ISSNe: 2477-9385

# Methodical approaches of forming high-technological manufacturing on the basis of efficient functioning

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**Abstract**

The article is aimed at researching the economic nature of management of formation and functioning of the special economic zones via review of scientific approaches to the development of the special economic zones as a method. As a result, the economic and social identification aspects are the most important aspects of the efficiency of developing special economic zones. In conclusion, development of science-intensive productions is influenced by a great number of factors, some of which can develop only with the support of the government.

**Keywords**: Innovations, Development, Science-Intensive Economy.

# Enfoques metódicos de formación de fabricación de alta tecnología sobre la base de un funcionamiento eficiente

**Resumen**

El artículo está dirigido a investigar la naturaleza económica de la gestión de la formación y el funcionamiento de las zonas económicas especiales a través de la revisión de los enfoques científicos para el desarrollo de las zonas económicas especiales como un método. Como resultado, los aspectos de identificación económica y social son los aspectos más importantes de la eficiencia en el desarrollo de zonas económicas especiales. En conclusión, el desarrollo de producciones intensivas en ciencia está influenciado por una gran cantidad de factores, algunos de los cuales solo pueden desarrollarse con el apoyo del gobierno.

**Palabras clave:** Innovaciones, Desarrollo, Economía de la Ciencia.

Recibido: 27-12-2019 •Aceptado: 17-03-2019

## 1. INTRODUCTION

Transformation changes in the global economy of the end of XXth – the beginning of XXIst centuries, which cause its transition to a new quality, are mediated by turning of the knowledge and information into a manufacturing factor, by the science and technologies development, and the growth of a share of the services sector within the GDP. In recent decades the scientific knowledge, while directly influencing the economic growth, has done the groundwork for the innovations production and has formed the reproduction of the skilled labor force. For all that, the issue of managing the special economic zones is not adequately researched yet with account taken of specific conditions of their functioning. At the same time, the research topic is important because of a number of related tasks, which have an internal logic: While the ties were developed and broadened and Russia was integrated into the world economy, the practice of using the special economic zones was being implemented. In this connection, it is necessary to look for new tools of managing the special economic zones to implement the forced industrialization and to develop the optimally efficient infrastructure and the innovation activities. As many issues of the efficient functioning of the special economic zones are needed for the business practice and inadequately covered in the scientific literature, there is a need to take a many-sided view of a phenomenon of the special economic zone.

## 2. LITERATURE REVIEW

In the economic literature the efficient simulation of management and development of the special economic zones in the national economy

are covered mainly by the papers written by foreign scientists, but even they do not cover the development of the special economic zones in full. In the main, scientists focus on the processes of forming special economic zones. They include the papers written by such foreign scientists as Blibok Robert-Rogers, Nguen Chi Khieu, and Webster. Delmon D., Wolman G., and Russian scientists (Zabolotsky and Untura, 2010).

## 3. METHODOLOGY

The notion science-intensive economy is interpreted broadly. This is often the economy of the industrially developed countries and a number of new industrial countries. The notion scientific content was used in the Soviet economic literature, true, in relation not to the whole economy, but only to its separate sectors, branches (science-intensive branches) and productions (science-intensive productions). The foreign research may use, in the same context, the notion R&D Intensity, which is also applied to branches and corporations, in other words, it is close to the notion of science-intensive production. In the modern sense, there cannot be a science-intensive economy with a low level of costs for science and a small quantity of scientific and technical specialists. The science cannot develop without consumers and a relevant technical basis in the form of the science-intensive branches and services. An initial point in forming the science-intensive type of the economy is a relevant generally cultural, intellectual environment for science development. At the same time, the choice of priorities of scientific and technical and innovation policy is

determined by the technological development level and the economic structure of each country, its scientific achievements and traditions.

## 4. RESULTS

According to the concept of the Organization for Economic Cooperation and Development, the industrial branches are divided into four categories: high-technological, middle-high-technological, middle-low-technological and low technological – depending on the innovation-technological intensity of the research and development, which they carry out. There are a lot of definitions of high technologies, they are changing depending on the context, where they are used. All manufacturing industry branches in accordance with the level of intensity of costs for the Research and Advanced Development are divided into 4 groups: high-technological, average high, average low and low-technological branches. This classification makes it possible to sort out high- and middle-technological branches of the industry. The level of the scientific content of the economy is measured as a share of products of branches of the high and middle technologies in the industry or the GDP. According to this methodology, the high-technological branches include the branches, whose level of intensity of costs for the Research and Advanced Development makes up more than 7% to the production volume .

For the average high branches, this level is 2-7%, for the average low branches - 0.5-2%, for the low-technological branches – less than 0.5%. The real state of the scientific intensity level in different countries can be quite different. For all that, predominance within the production of

the branches, which are notable for the low dynamics of the use of scientific knowledge and innovations are influencing other components of the science-intensive economy too. In other words, the economy with a low level of the industry diversification, predominance of low-technological branches is unlikely to assure the basis for an obvious growth of the Research and Advanced Development costs of the industry and business, and at the same time, to raise a level of the Research and Advanced Development costs in the GDP to the level of industrially developed countries. The term high technologies are widely used and applied to the branches and products as well as to employment. High-technological enterprises usually use the state-of-the-art equipment and machinery, they allocate heavy expenses for research and developments and they use a high share of scientific, technical and engineering and technical staff .

Development of the science-intensive industry is mainly related to implementing the programs of innovation industrialization. However, as practice shows, there are no significant changes in this sphere. This is related to the fact that initially in the development indicators a low dynamics of development of the manufacturing industry branches was built and the task not to let it go down was set. An analysis of innovation success of the leader countries makes it possible to conclude that significant factors, which favor the new economy formation (the economy, which is based on knowledge; the science-intensive economy) are human capital and research as well as the knowledge, technologies and creative results. Formation of new economic branches, increase in the quantity of innovation-active enterprises and the export of the science-intensive and the high-technological products will favor the development of the science-

intensive production on the basis of the special economic zones, which, in its turn, will increase the competitiveness of the domestic goods. The free economic zones can be classified according to the signs, in particular :

- According to the degree of interestedness into the world and national economy, there are extravert zones of an enclave type, which have a closed nature and which are oriented to the external market, and the introvert integration zones, which are related to the national and world economy ;

- According to the branch sign, there are different types of zones with account taken of their particular branch or complex, multifunctional specialization of availability in the export processing zones (EPZ) of the enterprises, which apply to different branches of the industry;

- According to the property nature, there are state and private types of zones, and mixed zones as the most widespread forms of property in the world practice, where the state property exists and interacts with the private property (Xepcmamm et al., 2009) ;

- According to the nature of activities, there are free trade zones; complex special economic zones.

The free trade zones have a preferential treatment of the economic, including external economic activities, they do not require key investments and they are repaid quickly. One of the options of the free trade zones was free (duty-free) customs zones, which cover limited parts

of the country customs areas, within which a special legal regime of business was implemented. It was revealed that those zones, which are also called free customs areas, represented the simplest forms of the special economic zones and they were zones of the first generation. At present the scientific and technological zones, which are oriented to the assurance of the accelerated transfer of new technologies to the industry, became widespread. At the same time, the high technological enterprises, which were usually created near large scientific centers, – various industrial parks, technology towns, innovation centers and so on, reflected national peculiarities of the countries. The offshore territories also belong to the areas with preferential treatment of rendering various financial and non-financial services. A specific feature of the development of the special economic zones is an information orientation factor, which gives impetus to the mutual competence of the participants, strengthening of their cooperation (Andreev, 2009).

As a result, unique competences of a region are formed, a low level of concentration of enterprises and organization including the special economic zones is averted on a certain area in order to manufacture qualitative products, which meet the world requirements, which leads to achievement of a synergetic effect of the economic management branch and the whole region. The special economic zones are a lever and an efficient innovation mechanism. An analysis of theoretical aspects in this scientific research of the special economic zones showed that the zones are various, since they are influenced by different factors and conditions, peculiarities of a specific state. The following important signs play a great role in the activities of the special economic zones:

- The novelty of products and technologies, quality of products;

- Internal connectedness (creation and development of the special economic zones within the cooperation) ;

- New technologies, innovation activity.

- The main signs, which differ clusters from the special economic zones, include:

- Development of branches, regions of the national economy;

- The unlimited territory of a country;

- Lack of benefits;

- Implementation of national programs;

- A cluster consists of the system of interrelated enterprises, organizations, universities, banks, research institutes etc., which are engaged in the designing, concept, manufacturing, trade, sale, supplies, insurance, purchase of products, in other words, the complete life cycle of products and production. The special economic zone in developing countries is characterized by export-production, a raw material type of zones and they are different in terms of a structure of sources of the capital attracted. While considering the special economic zones in developing countries one can characterize them as the special economic zones with an export-manufacturing, raw-material type of zones. Assurance of efficiency of development of the special economic zones is a complex process, which requires the focusing on the following

provisions: Monographic research of ways of achieving the economic reasonability of creation and functioning of the special economic zones;

- Designing of an institutional structure of the special economic zone, where the hierarchy represents all levels of its participants ;

- The revelation of the management mechanisms in assuring the social and economic profits from creating special economic zones;

- Development of methods of determining the efficiency of development of the special economic zones (Fukuyama, 2016; Ismail et al., 2018).

A monographic analysis showed that achievement of the economic reasonability of creation and functioning of the special economic zones implies a wide range of possibilities for improvement. Bazhenova said that the special economic zones were actively stimulating the development of related branches and neighboring areas. Aleksandrov believes that efficient development of the special economic zones requires the creation of incentives to establish the economic ties between companies on the basis of innovation-orientation forms of the public-private partnership. Additionally, measures are offered to bolster the role of the state in creating the institutional and legal framework of formation and development of the special economic zones. So, Baklanov et al. (2011) proposed improving the organizational and economic mechanisms of the state regulation, and he also formalized a mechanism of public-private partnership within the special economic zones. This indicates that clear management mechanisms must work in the basis of successful functioning of the special economic zones. While generalizing opinions of the

mentioned authors, one can represent a structure of components of the mechanism of the economic incentive for the development of the special economic zones: Maintenance of production projects and financing of the infrastructure;

- Stepping up of priority avenues of research activities ;
- Unification of programs of development of the special economic zones with regulatory assignments to the budget of management companies;
- Business development;
- Integration of national economy in granting the benefits etc.
- The administration of the special economic zones is entitled to approve the fund money, which is aimed at creating and widening the production capacities and rendering the services;
- In the special economic zones a duty-free zone regime must be in force for the accelerated formalization of the materials imported, and other goods without collecting the duties and taxes;

There are many such recommendations, but in order to implement the balance in the economy, it is necessary to efficiently step up the management mechanisms, which require a high level of organizational management maturity at all levels. Thus, the management tools and the mechanisms for developing the regions must be implemented simultaneously with regional programs of development, which assure the synergetic effect from these regional programs. The process of developing the management mechanisms must provide for a life cycle and development stages of the special economic zones. Creation of the special

economic zones in each certain case is related to fulfillment of a wide range of certain functions of different levels. The functions of zoning the special economic zones include a complex of measures aimed at the creation and efficient functioning in the country. However, the scientific literature in the sphere of special economic zones does not provide clear insight into the importance of various kinds of successful management of the special economic zones in the economic system. Varshavsky (2010) said that the state regulation of the process of creation and functioning of the special economic zones is performed at a strategic level through passing a lot of relevant laws, and it recommends considering the processes at macro- and micro levels, in other words, at an interstate, national and regional levels, since each level has a certain specific character. A management system of the special economic zones can be a consequence of adopting a concept of managing the special economic zones: Management goals (strategic, tactical) ;

- Management principles; management functions ;
- Management structure ;
- Management methods and others.

The whole process of managing the special economic zones contains a lot of interrelated aspects. So, in any current economic situation it is necessary to work out its own rational approaches to regulating the process of creation and functioning of the special economic zones:

- Formation of a concept of regulating those processes requires the working up of all the issues and means of their solution in relation to the functions assigned;

- In developing a structure of the management system of the special economic zones.

The world practice concluded that there is a need to separate a regulating role from the role of the founder, developer and operator of the zone. At each of those levels, the regulation process has its specific character and complexity levels. From the perspective of the conclusions, which are in the literature, we believe that the organizational structure and functions, which are used in the whole world, can be represented in the form of a pyramid of the standard institutional structure of the special economic zones, wherein the hierarchy the State – Regulator – Developer or/and Operator are located successively. When creating a special economic zone of any type and assuring its stable functioning, the management bodies must respect the interests of all the parties to avoid institutional problems in the national economy. A review of the domestic and world literature made it possible to conclude that it is necessary to take into account of peculiarities of the existing management structure at different levels for simulation and development of the management structure of the special economic zones (Smotritskaya & Chernykh, 2011) .

Many special economic zones are allocating large time and financial resources to implement new technologies, which speeds up the development of productions, attracting direct investments, the increase in the quality of the products. Importance of efficient cooperation of the business and government in developing the priority economic sectors is emphasized in many scientific papers. It is crucially important to use the

management mechanisms in assuring the social and economic benefits from creation of the special economic zones. The research showed that the problems of functioning of the zones can appear for different reasons, but frequently the zones are concerned about the lack of strategic orientation, overdependence on tax benefits, incorrect localization of the special economic zones, inefficiency and corrupt practice of the rules and the lack of infrastructure. There is a need for a complex approach to research of effectiveness of the special economic zones on the basis of analysis of factors, which make it possible to determine the gaps in using the management mechanisms because there are no proper methods (a mechanism) of management of the project, program and portfolio; the gaps of knowledge management; the problems of a mechanism of the private public partnership (to attract investors and professional management companies to the special economic zones) etc (Golichenko, 2015) .

We believe that for that it is necessary to consider a hierarchical pyramid including the portfolio, program and project. On the pyramid top – at a strategic level – a portfolio management mechanism (all programs and projects, which have priorities depending on the goals of the company or the state) is positioned. At a tactical level – a level of programs management – there are a lot of interrelated projects. The mechanisms of projects management can be used by management companies of the special economic zones in managing government purchases and implementing the budget programs. So, it is necessary to determine strong points of this mechanism, which would make it possible to determine and to take into account the synergy effects in the selection of the projects of the special economic zones. The main task of the project management is

the correct implementation of the projects, and the task of the program and portfolio management is the implementation of correct projects. The implementation of the program management must be one of the tasks of management companies of the special economic zones since the programs will favor the creation of added value of the future special economic zones, competitive advantages etc. At the next stage, it is necessary to implement the methods to manage the projects portfolio at a level of the regulating body, which must assure the balanced development of the state programs to assure the stable growth in the long term .

In order to imagine all the complexity and all the scale of tasks of the regulating body, suffice it to look at the goals of the portfolio management. As the main task of this work is a study of successful models of management and institutional structure of the special economic zones, the grouping of all factors and the further development of ways of the success improvement and the negative consequences decrease are a priority task. As the process of creating the special economic zone itself and the facilities of the special economic zone belongs to the section of knowledge on projects management, it is necessary to analyze the factors influencing the successful project management. In this respect, we recommend applying the results of the analysis of critical factors of success, which are used for any special economic zone irrespective of its goals. Those parameters must be controlled at the projects of the special economic zone and it is necessary to take care of them while working out the documentation at initial phases of the project, when planning and implementing the project. The research revealed that efficient management of the human resources influences the project success more than technical issues do. In spite of this discovery, only a few studies were

conducted to research the so-called skills of interpersonal communication during project management (Bagrinovsky, 2013) .

This field was researched as the creation of favorable investment climate and attraction of domestic and foreign investments to implement the investment projects and the complex development of various branches. In this case, the public-private partnership acts as a mechanism of creating the infrastructure and management of the special economic zones. During the review of research papers, the mechanism of the public-private partnership in creating the special economic zones was one of the poorly researched mechanisms. There are many various definitions of the public-private partnership. The authors of some scientific papers are interpreting it as a special form of privatization and they confirm that the public-private partnership determines a wide range of relations in agreements and contracts. With the public-private partnership, there is a possibility and conditions for cooperation between the government and the private sector. Literature in the sphere of cooperation between the government and private sector mentions a number of important issues. As is known, the building of special economic zones, first of all, starts with the building of the special economic zones' infrastructure .

Installation of the water supply system, communication services, electricity, transportation lines, sewerage system and heating to the special economic zones is the first necessary measures. On average, this infrastructure is created for 2-3 years depending on the area and the creation assures the financial and economic activities and safety of participants of the special economic zones. All of the aforesaid indicates that there are no clear methodological ways in the practice of management

of the special economic zones. For all types of special economic zones, there are specific peculiarities of determining the efficiency of some territories. In the modern conditions of formation and development of some territories, the basis of increasing the competitiveness of the special economic zones in the cluster system of the government, such motives as benefits during organization, risks of the special economic zones become particularly important, they are studied and worked on by both foreign and domestic companies, before opening an enterprise in the special economic zone with account taken of a cluster. For efficient development of the special economic zones, importance, effectiveness and overcoming of the risks, it is necessary to conduct the comprehensive research, which makes it possible to develop a mechanism and to reveal resource support for necessary transformations within the research object. To assess the efficiency of management of the special economic zones, indicators are used such as a branch structure of the aggregate social product of the special economic zones, dynamics of its change, net products of the special economic zones, final products of the special economic zones, performance indicators of the special economic zones, reproduction process etc. So, Kuznetsova & Roud (2011) uses the following indicators to determine the problem of special economic zones: Unemployment level,

- Labor market forecast,
- Demographic measures,
- The low density of population,
- Per capita gross domestic product,

- Structure indicators,
- Population incomes,
- Infrastructure indicators and others.
- The most acceptable method to the general management assessment is an approach covering other composing kinds, such as:
- Industrial investment,
- Organizational-regulatory, Production.

Meanwhile, the research was especially impeded by the lack of proper information about the development of the research objects. So, among the indicators, which are used in the world, to assess the many-sided characteristics of the special economic zones, we selected some of them, which influence the management decisions. The necessity of the assessment methods indicates that many traditional approaches to the enterprise's management are getting less efficient. A comparative analysis out of the above-mentioned models showed that the indicators, systems of strategic management of an organization (BSC), represent the significant aspects of the enterprise activities. The process of cost management (EVA), in its turn, offers the cost calculation of the company and the level of economic added value, and the management of the cost change. We consider it reasonable to create a model of assessment of the management efficiency. The offered methods of the assessment are necessary to reveal weak points of the management model, to elaborate measures for improvement and adaptation to new conditions (Gokhberg, 2012) .

It is assumed that this method will increase the level of management system steadiness to disturbances and will decrease the losses volume when the disturbances are impacting the system. Apart from that, we consider it necessary to carry out the analysis in accordance with life cycles (pre-investment, investment, operational and the recession period) of the special economic zones. For the three-level model of the special economic zones, which we recommend, including the enterprises in the special economic zones, a method of the management efficiency assessment is developed for the most efficient work and to make it more steady to external and internal factors. An algorithm of the management efficiency assessment provides for the comparative analysis of assessment of the marginal, multilevel, regulatory indexes with actual indicators. The effectiveness result was calculated as an arithmetical mean indicator, formula:(1)

$$R \text{ of the group} = [(A1 + A2 + \ldots + Ai)/i + (B1 + B2 + \ldots + Bi)/ i+ (C1 + C2 + \ldots + Bi) /i] / Q \quad (1)$$

Where A, B, C are the threshold and actual indicators of relevant groups of separate special economic zones ;

i is a number of indicators of each group;

Q is the number of groups of factors;

R of the group is a rating of the level of the group of threshold and indicator indexes, which we determine in three ranges, and it can have the following values:

- From 0 to 0.3 is a low level of development (a zone of crisis state);

- From 0.31 to 0.6 is a middle level of development (a zone of unsatisfactory state);

- From 0.61 to 1 is the best level of development (a zone of satisfactory state).

This approach gives insight into the management possibilities of the special economic zones and reflects the aggregate concentrations of innovativeness, investments, organization, production possibilities and economic results of activities within each special economic zone and in the Russian Federation on the whole. For the purposes of an express analysis, it is necessary to compare the indicators with regulatory and plan values, with the indicators of the advanced special economic zones and the parameters for the past periods. In the event of the revelation of deviations from the normal mode of functioning of the special economic zones, the process of evaluation of the influencing factors upon the management steadiness starts. The final stage of a qualitative assessment of steadiness is a revelation of the management mechanisms and the development of measures within the marketing, investment, organizational-management and project activities, which make it possible to make the management more efficient on the whole. The third block assesses the management efficiency of the special economic zones, the result of which is an integrating indicator of the efficiency of management of the special economic zones. The fourth block activates the adaptation and innovation mechanisms of the management system of the special economic zones (Gokhberg et al., 2010) .

The offered mechanism of assessing the management efficiency has functions of revealing the deviations and determining the adaptation works. While developing the correcting measures, by means of the said mechanism of assessing the management efficiency it is possible to build a strategy of implementation of improvement in the management models. Diagnostics of the management efficiency of the management model of the special economic zones are an independent scientific task, which must be comprehended seriously. A source of information for the analysis and the management assessment of the special economic zones are reports and attachments to them, statistical and operational information. Within the research conducted it is necessary to consider notions of the mature, potential and appearing risks. During the research the scientists focused on three main kinds of risks: Mature risks are threats, which switch over to invasion or actual non-fulfillment, with such threats the investors, government agencies, enterprises do not invest their capital. Potential risks are possible threats, which switch over to invasion or possible actual non-fulfillment. Appearing risks are threats, which just appeared and can influence the decisions adopted by investors, government agencies, enterprises both positively and negatively. The authors Kovalyov sorts out two groups of factors, which are necessary to assess the development efficiency:

The first group includes factors, which reflect the existing competition advantages of the special economic zone, its internal specific character and differentiation of conditions of the development efficiency on the basis of the internal scale effect;

- The second group reflects the main sources of making the special economic zones development more efficient and is considered as a specific feature of conditions of the three-dimensional interaction of the special economic zones with the external environment.

Tochitskaya sorts out the factors, which determine the efficient development of the special economic zone's territory. On the basis of the methods studied, with account taken of the factors, of the experience of the existing special economic zones, to assess the identification of 1–3 stages the following quantitative and qualitative indicators are offered, such as :

- Number of jobs, employment of population;
- General investments including the foreign, domestic investments ;
- Budget funds volume ;
- Innovativeness of products ;
- The volume of output ;
- Tax level ;
- The number of participants;
- The number of projects ;
- The quantity of the special economic zones ;

- The number of clusters ;

- The number of enterprises, organizations in the cluster; quantity of administrative-and-managerial levels ;

- The number of integrators; types of activities; territories of the clusters and the special economic zones; the legal framework; benefits of the special economic zones (Gracheva et al., 2012).

Under current conditions of formation and development of some territories, the basis of making the special economic zones more competitive, such motives, as the organization benefits, the risks of the special economic zones, are taking on particular importance, they are studied and worked on by the foreign as well as domestic companies before setting up an enterprise in the special economic zone with account taken of the cluster. Thus, it is necessary, with the account is taken of the great scientific and practical importance of the achievement and overcoming of the risks for efficient development of the special economic zones, to perform the independent comprehensive research, which makes it possible to develop a mechanism and to reveal the resource support for necessary transformations. Morgenshtein and Neiman in their papers consider the risk as a negative factor. The risk, as an integral part of the economic, political and social life of the society, inevitable accompanies all spheres of the activities and aspects of any organization, which operates in the market conditions, especially in forming and developing the special economic zones in the cluster system .

Thus, the economic and social identification aspects are the most important aspects of the efficiency of developing special economic zones. The economical-mathematical model of the correlation-regression analysis, which we offer, uses dispersion, which is a statistical measure used for assessing the fluctuations amplitude from average values and calculated as the standard deviation squared. The correlation dependence between such indicators as the profitability of the special economic zones and the investments volumes are taken as a criterion. If both rows of those indicators are moving in the same direction, this relation is considered as positive. If they are moving in the reverse directions, this relation is considered as negative. The correlation is usually assessed in the range from +1 to –1. As a matter of fact, in this case, the correlation dependence measurement is built on the revelation of a degree of influence and interdependence of one user in comparison with the dynamics of change of another user. Apart from that, the modern portfolio theory uses in its assessment such an indicator (parameter) as beta. Through the beta indicator, it is customary to assess the level of the non-diversified market. The following formula is used for that :

$$r_{i,t} = a_i + (b_i * r_{m,t}), \quad (2)$$

Where ri,t is planned profitability of the project or the security i or the portfolio i at a moment of time t;

ai is a free member of regression, from which the assessment starts (a specifically chosen indicator);

bi is the beta coefficient, which measures the profitability unsteadiness in comparison with the average possible profitability of the investment activities in the specific goods market;

rm, tis the possibility of obtaining the profitability by means of the project or portfolio m at the moment of time t.

In practice, New York Stock Exchange index is taken as a coefficient and a market profitability measure, and the beta coefficient is measured by means of its relative fluctuation value in comparison with the market profitability index to one or another direction. The beta parameter utility is seen when the regression equation (1) can explain the availability of profitability fluctuations. A sense of this indicator is that if an investments portfolio has the beta value, which is equal to +1, change of its profitability in the future must correspond to the sales growth in the market in prospect, or, on the contrary, the profitability can fall with the same extent as the sales volumes can decrease. With the reciprocal value, a situation can appear when the sales are growing, but the investment portfolio profitability can fall. This situation can appear because the market prices fall or the competition increases.

## 5. CONCLUSION

Review of scientific approaches to the development of the special economic zones in this research makes it possible to draw the following conclusion. Development of science-intensive productions is influenced by a great number of factors, some of which can develop only with the

support of the government. The relevant regulatory framework, which they develop, applies to regulation of the national industrial policy, formation of the branch approach and the public-private partnership; participation of the capital market, in particular, the risk capital support; the cluster and business framework. The innovation policy implementation is assured, first of all, by the activities of innovation agencies, which perform necessary procedures and have the legal possibilities of management of the specific risks, which accompany the innovation activities. To this end, they carry out the permanent monitoring and keep an eye on the situation in the high-technological branches and sectors of the industry. The science-intensive economy concept can be considered as a complex of key provisions or sets and as a system of ways to solve the tasks. In the first case, the science-intensive economy is economy, whose development is determined in a great measure by factors rich in scientific knowledge. It is possible to sort out the following groups of components, which determine the possibilities of forming the science-intensive economy .

The social and cultural components, which determine the general cultural background of developing the science in the country, understanding of generality of the scientific knowledge, a role and functions of the science informing the social and humanitarian values, world outlook and priorities, intellectual traditions and a style of thinking and decisions adoption. Human resources of the science-intensive economy. Its role is caused by the fact that a creator and carrier of scientific knowledge, standards and values is a category of people, who were sorted out into a certain professional group. The main function of this group is the creation and spread of new scientific knowledge,

preservation of scientific traditions, and reproduction of scientific schools. This professional group is joined by a numerous category of employed people, whose activities are related to the active practical use of specialized knowledge in different sectors and branches of the economy. Intellectual and information components are related to the fact that the science-intensive economy requires the creation of resources, which will fill the information space, assure the accessibility of scientific knowledge .

The structural components are related to the fact that the kinds of economic activities must widely represent the productions and services, whose development critically depends on the intensity of the use of scientific knowledge. Those are the so-called science-intensive kinds of services and the science-intensive branches of the industry and production, which are forming the demand for scientific knowledge and developments. In its turn, for development of those components, there is a need for a relevant institutional environment and demand for innovations from the businessmen and the society. It is remarkable that the World Bank criteria have such a qualitative characteristic as the complexity of business and complexity of the market. Actually, this is a developed national innovation system, which is characterized by the integrity and continuity in the generation of new knowledge and transfer of this knowledge to the economy. Thus, a paradigm of development of the leading world states is based on innovations and has an evolution economic orientation: in those countries, the new knowledge is getting the most important factor along with the land, capital and labor force .

In them, the national innovation system is getting a part of the economic system of the country as well as, in its mature stage, replaces the

system transforming into the science-intensive economy. The development of a concept of the science-intensive economy requires the elaboration of a methodology, which makes it possible to sort out and to measure the main parameters of the science-intensive economy. At present, there is no universally recognized methodology of the research of the science-intensive economy as well as a conventional idea what the science-intensive economy is. So, we believe that to this end the methodologies and international standards for researching some components of the science-intensive economy can be used and adapted, they are applied successfully in the field of the scientific, social and industrial policy. In accordance with the considered aspects in a mechanism of forming the science-intensive economy, it is necessary to sort out such aspects as the development of science, development of science-intensive branches of the industry, services, technologies, development of the human capital. The most general approach to the understanding of the scientific content of the economy can be a measurement of the level of development and dynamics of the scientific potential, and the level of costs for science to the GDP will give the most general estimation of the scientific content level of the GDP .

It should be noted that at present the international standards in the field of the methodology of statistics of science (Fraskati and Oslo manuals) and the research of scientific potential are widely used. As assessment indicators, it is possible to use the achieved indicators of the scientific development in the EU and the Organization for Economic Cooperation and Development. The second approach is the research of the high technologies contribution to the economy. The special economic zones are related to government development and their economic policy

and the special economic zones are the embodiment of business relations. Summarizing the above, the author's view is reflected, which is the embodiment of a synthesis of two notions the special economic zone and the cluster. A synthesis of two such phenomena leads to the fact that on the one hand, the clusters give the special economic zones a peculiarity, which characterizes them as one of the types of the economic development, which are related to a system of interrelated elements on a certain territory of various institutional structures, which take on the role of the growing-points of a branch or a region .

On the other hand, the special economic zone has a sign of the innovativeness and competitiveness, which is of great importance to the cluster itself. The cluster implies a system of interrelated enterprises, organizations, universities, banks, research institutes etc., which are engaged in the designing, concept, manufacturing, trade, sale, supplies, insurance, purchase of products, in other words, the complete life cycle of products and production. Creation of a cluster allows the participants to achieve the synergetic effect from the interaction and it performs functions of a certain testing area for developing new domestic productions. Thus, for successful formation and development of the cluster system it is necessary to correctly choose a location and placement of the cluster initiatives.

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**UNIVERSIDAD DEL ZULIA**

opción
Revista de Ciencias Humanas y Sociales

Año 35, Especial N° 19, 2019

Esta revista fue editada en formato digital por el personal de la Oficina de Pubñlicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
Maracaibo - Venezuela

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