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«Economy and management: theory and practice»  
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# Reproduction conditions and economic growth factors

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**Abstract.** *The article is devoted to the changing role of economic growth factors driven by the transformation of historical conditions. The role of each of the factors of macroeconomic growth changes radically depending on historical conditions. The task is to, when exploring the evolution of economic relations, identify factors that are adequate to the conditions. Four development stages of the civilization process are distinguished, each of them has its own specific ratio of growth factors. These stages differ from each other in the degree of rooting of industrial methods of production (industrialization), alternative to manual labor. It is shown that the key properties of the production function of the Cobb-Douglas type come into apparent contradiction with the type of modern industrial (industrial information) production.*

**Keywords:** *economic growth, production function, economic space, industrialization, second industry*

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# Process maturity of the strategy as a factor in the effective interaction of the company with stakeholders

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**Abstract.** *The article substantiates the need to develop a methodology for assessing and improving the process of developing and implementing a strategy with a focus on stakeholders as strong participants in economic relations in terms of actual results and the company's overall profitability. The possibilities of using the reference model CMMI to provide a description of the process and the institutionalization of its management are shown to solve the problem. Particular attention is paid to measurable indicators of perception of stakeholders – satisfaction, loyalty and involvement, as well as how to measure, monitor, analyze and evaluate them. The directions of improving the strategic management of the company are formulated and justified in order to increase the effectiveness of interaction with stakeholders with reliable channels for the movement of management information and feedback.*

**Keywords:** *strategy, stakeholders, reference model, measurement and analysis, measured indicators of perception of stakeholders*

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# Improving the economic mechanism for environmental protection

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**Abstract.** The article highlights the need to improve the economic mechanism of environmental protection. The analysis of the practice of economic incentives for economic entities to reduce the technogenic load on the environment in the Russian Federation is carried out. It is proved that one of the effective ways to stimulate is an economic tool such as payment for negative impact on the environment.

The advantages and disadvantages of this proposed type of incentive are investigated. Ways to improve this practice are outlined, taking into account an adequate assessment of the negative impact of pollutants on the environment. An improved method for calculating payments for pollution with a focus on the actual amount of damage, which will allow the most accurate assessment of the actual damage caused by the business entity to the environment, is proposed. As prospects for further research, it is proposed to test the proposed method at enterprises in Sevastopol.

**Keywords:** emissions, pollutants, waste, discharges, specific economic damage

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## Dynamics of institutional parameters of regional socio-economic systems

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**Abstract.** The status of socio-economic systems at the macro and meso levels depends to a large extent on their formal and informal characteristics. The article presents an attempt to coordinate the dynamics of indicators reflecting the interrelationships between institutional and economic parameters of socio-economic development of the Voronezh region - one of the typical regions of Central Russia. The composition of the indicators characterizes the behavior of the population of the region on the axis "hedonistic type of behavior - ascetic type of behavior." The ratio of consumer expenditure to per capita income is proposed as the analysed indicators; The share of the received credit funds of individuals in the total income of the population, calculated as a balanced result; Share of attracted investments in fixed assets; The share of monetary income of the population aimed at increasing financial assets; An indicator opposite to the ratio of money raised by credit institutions to the total income of the population. The analysis found that during the period of 2000 - 2017, the region is implementing a type of behaviour that can be characterized as "cautious hedonism".

**Keywords:** institution, type of behaviour, ascetism, hedonism, relationships between institutional and economic parameters

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## Problems of assessing the liquidity of the company

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**Abstract.** The article examines the most common methods in modern financial literature to diagnose the liquidity level of the company. The advantages and disadvantages of absolute and relative liquidity indicators based on static parameters (balance sheet data) are investigated. Based on the study of Rosstat's data on liquidity of domestic enterprises and the amount of arrears on wages, it is concluded that the traditional methods of liquidity calculation are insufficient. The need to expand the range of liquidity indicators by including financial coefficients based on dynamic indicators – cash flow indicators – is substantiated. Additional financial indicators have been proposed, the use of which will allow a more complete and qualitative assessment of the company's ability to meet its obligations to creditors of different categories. The method of calculating additional indicators of liquidity of the company is given.

**Keywords:** liquidity of the company; Financial ratio; Liquidity ratios; Cash flows; Net cash flow from current activity; Net cash flow from investment transactions; Net cash flow from financial transactions; Free cash flow

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## **Risk assessment and management of receivables and payables logistics companies**

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**Abstract.** The article is devoted to the application of one of the highly effective methodological approaches of modern risk management to managing the risks of receivables and payables of a logistics company. The purpose of the study was to identify the main risks of settlement and credit policies inherent in a logistics company. The risk management methodology was based on the COSO ERM Risk Management Concept, which is a comprehensive risk management system at present, which allowed us to formulate the typical risks of receivables and payables of a transport company and assess their impact on its business. It was revealed that the specificity of the transport company in the identification of risks plays an important role. It was reflected in the formation of the business processes of a logistics company that affect the occurrence of risks, which are discussed in detail in this article. An assessment of the degree of impact and the likelihood of certain risks made it possible to develop specific areas of the process of managing and controlling them at the enterprise in question. In general, the application of the concept proposed by the author in the field of private areas of risk management requires an integrated approach that takes into account both market factors and specific industry specifics, adjusted for the level of financial condition and, in general, for the economic activity of the enterprise.

**Keywords:** risks, risk management, risk assessment, receivables and payables, logistics company, transport industry

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## **Formation of entrepreneurial competences of future specialists as a factor of development of innovative potential of economy**

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**Abstract.** The article considers the possibilities of innovative way of development of the national economy through the realization of entrepreneurial activity. Tools of state support of youth entrepreneurship are presented. A diverse analysis of the essence of the concept of "entrepreneurship" as well as the role of "entrepreneur" in society has been carried out. The issue of the relevance of the formation of entrepreneurial competences among future specialists during the period of higher education was considered. A study of the structure of distribution of career orientations was carried out on the example of students of Sevastopol State University. Leading and main career orientations have been formalized. The level of expression of career orientation "entrepreneurship" was analyzed, as well as the impact of the direction of training of future specialists on the degree of expression of the corresponding career orientation was assessed. The results made it possible to justify the feasibility of implementing an entrepreneurial educational trajectory within the framework of the educational process, as well as to formalize the most effective opportunities for the formation of entrepreneurial competences.

**Keywords:** innovative potential, youth entrepreneurship, educational trajectory, entrepreneurial competence, career orientation

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# Research of citizens' interest in introducing new digital services and technologies

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**Abstract.** Today, the information technology infrastructure is being radically updated. In the new environment, digital platforms must provide organizations and citizens with access to mobile services, use of new innovative technologies for processing and analyzing big data, machine learning and artificial intelligence, and support for the Internet of things and cloud technologies. The transition to a digital economy means a paradigm shift: from a data economy to an eco-system economy centered on the individual and their needs. Therefore, it is important to take into account the opinion of citizens, which technologies and digital services should be implemented in priority, not giving in to the desire to follow the desires of techno-experiments for the sake of leadership in the technological race of States. This study presents global technological trends and highlights the experience of their implementation in various areas. Thus, the survey showed that citizens are not ready to implement neurotechnologies and telemedicine, but they are interested in the possibilities of services based on identification tools (electronic passports, social cards, etc.), transferring most tasks to a mobile device, as well as virtual assistants, VR/AR. The possibilities of implementing a platform for organizing targeted charitable assistance, monitoring the financing of social services, and personalizing taxes were highly appreciated. On the basis of the survey, an assessment of the demand for technological trends that can be used to expand the number of digital services for the population is given. A number of recommendations have been developed for implementing measures during the transition period of digital transformation of public institutions.  
**Keywords:** digital transformation, information technology, trends, survey, public services

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## Innovation and investment appeal maricultural subsystem of the regional fishery complex

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**Abstract.** The article considers mariculture as an important, promising and steadily developing sub-industry of the region's fisheries complex. Based on the identification of problems and prospects for the development of the industry, the criteria for innovation and investment attractiveness of the maricultural subsystem of the regional fishery complex, each of which reflects one of the directions of innovation and investment attractiveness, were established and grouped into 10 main blocks (5 indicators each) three key components: the attractiveness of the territorial-administrative unit, the attractiveness of the micro-region (territories for creating mariculture farms), The attractiveness of mariculture hosts-tion. The application of the proposed criteria will allow the investor to justify the choice of preferred objects for investment, to establish objective signs, means, opportunities and limitations of the development of mari culture in a particular region, as well as to develop new management solutions for the effective functioning and development of the maricultural subsystem of the regional fisheries complex.

**Keywords:** fishery complex, mariculture, mariculture economy, investment attractiveness, investment, region, industry

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# Innovative development of regional economies: opportunities and threats in stakeholder assessments

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**Abstract.** *The purpose of the study is to form ideas about the opportunities and threats to the innovative development of the regional economy. Since the identification of these opportunities and threats is related to weakly structured problems, the use of expert assessments is required to solve this problem. The article presents the results of a survey of regional development stakeholders and representatives of the Executive authorities of the Voronezh region (the number of respondents is 20), who gave an assessment of the opportunities and threats to the innovative development of the regional economy predicted in the external and internal environment. The analysis of these results allowed us to identify the composition of the most significant opportunities and threats in terms of their impact and the probability of their implementation. The obtained estimates will increase the level of validity of decisions and actions of public authorities designed to ensure the creation of conditions conducive to the innovative development of the regional economy.*

**Keywords:** *regions, innovation, development, economy, opportunities, threats, expert assessments*

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## Modeling the impact of production and logistics systems on the level of economic development of the region (on the example of the Republic of Tatarstan)

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**Abstract.** *The article discusses the main directions of development of the transport and logistics infrastructure as a sphere serving the production and logistics systems at the regional level using the example of the Republic of Tatarstan. The purpose of the study is to identify key factors in the development of the transport and logistics sector at the mesoscale and their contribution to the formation of gross value added. As research methods, the article used the method of correlation, regression analysis and forecasting. As a result of constructing the economic and mathematical model, a functional dependence of gross value added by type of economic activity "transport" on such factors as investments and a balanced financial result per 1000 workers in the transport industry was revealed. The results of the study can be used in the development of managerial decisions aimed at improving the efficiency and competitiveness of the entire production and logistics system of the mesolevel.*

**Keywords:** *production and logistics system, modeling, transport and logistics infrastructure, transport and logistics centers, mesoeconomics, region, gross value added*

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## Modeling of information exchange processes in resource-saving production systems based on the IDEF0 methodology

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**Abstract.** *The article is devoted to the urgent problem of resource conservation at Russian industrial enterprises, which today is the main factor in increasing the competitiveness of products and the key to successful highly profitable business. The aim of the article is to develop a model of information exchange processes in resource-saving production systems. As the main research methods, the article used the formalization method to build a fundamental model of a resource-saving production system; description method to identify trends in resource consumption; functional modeling methodology IDEF0 to create a descriptive graphical model. To achieve the goal, the article proposes a fundamental model of the production system based on the efficiency of resource use. The authors analyzed the parameters of resource consumption for the production of petrochemical products, identified trends and problems in the field of resource conservation by type of production. A model of the processes of information exchange in resource-saving production systems is constructed that describes six functional modules and their material and information flows combining them. The scientific contribution of the authors lies in the definition and justification of the elements of the model of the production system, which are key in increasing the resource efficiency of production. The results obtained are the basis for further research on issues of resource efficiency, development of a methodology for the project approach to the organization of resource-saving production systems.*

**Keywords:** *resource saving, resource efficiency, production system, functional modelling, production resources, information exchange*

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## **The use of p-adic representation in the modeling of sociophysical objects**

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**Abstract.** *The article analyzes the question of the logical basis for the use of p-adic mathematics in modeling processes in life cycle management systems of a complex technical object. Characteristic features of the systems are given. An attempt is made in the article to justify the use of p-adic mathematics in modeling processes in life cycle management systems of a complex technical object. It is shown that there are at least two reasons for this. The first reason is related to the peculiarities of presenting information in p-adic form. This feature is related to the hierarchical nature of p-adic numbers. The second reason for using p-adic numbers is to preserve the form of the equations used in sociophysical modeling. This allows us to hope for new results that may not be obvious when using known methods.*

**Keywords:** *sociophysical approach, sociophysical potential, accumulated potential, p-adic number*

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# Development of renewables in the former USSR: comparative analysis of the Kazakhstan, Russia and Ukraine experiences

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**Abstract.** *The aim of the article is to identify the relative effectiveness and prospects for the renewables regulation in post-Soviet countries. Authors use the methods of analysis and synthesis, descriptive statistics, graphical and tabular visualization of numerical information. Comparative analysis of the Kazakhstan, Russia and Ukraine experiences completed on the base of open data from the IMF, the International Energy Agency, state analytical centres and agencies from the countries under consideration. Russia is shown to be more successful in fulfilling its obligations to reduce greenhouse gases, but this is achieved due to high rate of nuclear energy development as well as to hydroelectric power stations built yet in the Soviet period. At the same time, Russia is inferior to Kazakhstan (over the last 5 years) as well as to Ukraine (over the last 10 years) in terms of the rate of development of solar and wind energy. In 2018, Kazakhstan caught up Russia and even stepped forward by the share of renewable energy generation in own electricity production (including hydropower), although for the past quarter century, Russia has been leading by this indicator with a wide margin from other countries under consideration. In the field of solar and wind power (excluding hydro resources), the biggest success over the past 5 years was achieved by Ukraine. But even the best indicators achieved in Kazakhstan, Russia and Ukraine are yet far lower than the global average ones. The acceleration of the development of "clean" energy will be facilitated by the introduction of transparent competitive market mechanisms ("green" auctions) as well as by the creation of conditions for attracting "green" finances.*

**Keywords:** *alternative energy, green energy, renewable energy sources (RES), wind and solar energy, energy policy, emerging economies, low-carbon development*

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## Features of the application of management decision-making methods in a digital economy

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**Abstract.** *The article discusses the changes in the control system that are caused by the becoming of the digital economy. The analysis of publications on the research topic is carried out and the features of the application of management decision-making methods in digital format are identified. The authors name the following features: changes in the director's role, the presence of online communications, the absence of restrictions in the construction of working groups, the availability of automated data processing systems, the emergence of digital competencies, changes in the time period making decisions and changing the object of management.*

*Based on the identified features of the application of management decision-making methods in the digital economy, the process of making managerial decisions was transformed. The basis of the management decision-making process in the digital economy is computer data processing, which allows analyzing a large amount of information received from different sources, and at the output from several alternative solutions for the final choice.*

**Keywords:** *digital economy, digital technologies, management decision support system, artificial Intelligence*

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# Analysis of the relationship between the achievement of indicators of territorial development programs and the level of regional development in the Republic of Kazakhstan

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**Abstract.** The main reasons for the need to improve the system of state planning in Kazakhstan often include the formality of goals stated in documents, lack of decomposition of goals and objectives, underestimation of planned indicators of documents, lack of prioritization of goals, etc. This study is aimed at using statistical analysis methods such as correlation, regression and variance analysis to study the relationship between the achievement of target indicators of territorial development Programs and changes in the level of socio-economic development based on selected statistical indicators. The result of the analysis showed that there is no statistically significant relationship between the variability of the degree of achieved target indicators of territorial development Programs and the degree of socio-economic development described by the selected statistical indicators.

At the same time, this study was aimed at studying the PRT as a whole, without dividing it into economic spheres of activity of local Executive bodies, such as: economy, socio-demographic development, industrial development, etc. This issue can be studied in the following studies.

**Keywords:** Kazakhstan, state planning system, regions, socio-economic development, territorial development Program, target indicators, planning efficiency

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## Professional standards development and verification technology, its applications in learning management systems based on ontologies

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**Abstract.** The paper considers the higher education professionalization problem in the functionalist educational paradigm framework. It considers as a priority to improve the education quality taking labor market requirements expressed through professional standards into account. The isomorphism criterion based professional standards development and verification innovative technology is proposed as an effective solution to the problem. IT field ontology fragment built from web developer staff requirements and respective professional standard part is presented as a possible partial sample. The paper presents conceptual learning management system idea for ontology based modular adaptive learning with competencies verification. The authors state its wide demand at all levels of human capital application and development.

**Keywords:** professional standards, field of professional activity, isomorphism criterion, professional requirements, ontologies, competency verification, personnel development

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## Regional development of the digital economy of the silk road in the framework of the EAEU expansion

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**Abstract.** *The article presents the methodological approaches of evaluating the problems of organizing work and adapting the digital telecommunications network of the Republic of Tajikistan in the context of the implementation of the project for the integrated system of the Unified Digital Eurasian Network of Telecommunication Platforms. General scientific research is used to achieve the proposed goals. Systemizing the state of the object of the admissibility of the use of new digital technologies in the transport network of the X sector of the Republic of Tajikistan. Creation of a geo-economic space providing common customs rules and security, regardless of the geopolitical situation. The research results allow us to effectively ensure the functioning of the Great Silk Road, not only technical structures, communications in the geopolitical and geoeconomic space, but also as a branched communication framework connecting Eurasian civilization. As a result, international cooperation within the Silk Road will become one of the main factors that contributed to the development of the digital economy based on technological development and modernization of the telecommunications industry in the Republic of Tajikistan.*

**Keywords:** *The Great Silk Road, informatization of the Silk Road society, telecommunication network, digital economy, telecommunication markets*

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## Methodological approaches to the substantiation of the fine system for damage to the recreational potential of a resort city

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**Abstract.** *The purpose of this work is to assess the recreational potential of the Southern coast of the Republic of Crimea and to build a system of fines for causing damage. The methods of analysis and synthesis were used in the work. As a result of the analysis, the high resort-recreational, tourist and sports significance of the territory of B. Yalta was confirmed. An analysis of the regulatory framework, as well as official statistics on detected cases of violations showed that the functioning of the system for maintaining the recreational potential in the republic is characterized by low efficiency. The paper presents a classification of the types of damage to the recreational potential of resort areas. As a solution to the identified problem, the authors proposed the introduction of a system of fines for causing damage to the recreational potential of resort areas. The results of this work can serve as the basis for increasing the efficiency of existing methods of preserving the recreational potential and increasing the attractiveness of resort towns.*

**Keywords:** *recreation complex, tourist services market, environmental economics, protection of recreational resources, protection of cultural heritage, optimization of nature management, recreational potential, loss of the resort, fines*

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## Features of innovative development of a national economy with special political status

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**Abstract.** *The paper examines special limitations on the economies of states with a special political status (unrecognised or partially recognised states). We argue that even faced with complete or near complete economic and political isolation a state must seek not only to survive and maintain the minimum necessary level of economic viability but also to achieve sustainable development. We study the issues of economic development of a country, specifically via the innovative route which is seen as the most effective way of achieving that goal at this time. The paper highlights the main obstacles for this type of development using the Donetsk People's Republic as an example and suggests possible solutions. We describe the role of public administration in the process of organising innovative development of the economy.*

**Keywords:** *economic development, innovative development, innovations, qualitative transformation of the economy, unrecognised state, state with special political status*

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## **Innovative development in ensuring a sustainable economic component of the territory**

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**Abstract.** *In the current conditions of economic development, it is necessary to pay special attention to the situation and trends in the innovation sphere. An innovative economy is distinguished by a high development level of education and science, therefore the transition to an innovative development model involves increasing the level of regulatory impact of the state. The innovation space should become the basis of the economic component of the territory to increase competitiveness and stimulate further development. Territorial development must be carried out taking into account the specifics and with the interaction of all socio-economic and resource components, as well as with the widespread use of new technologies. At the same time, the innovation mechanisms pursued by the state should take into account existing mechanisms and tools to support innovation. Innovative development means a transition to a new level of governance in all areas of territorial development. State regulation of the development of an innovative economy is an important element of a common economic policy and an integral element of the functioning mechanism of modern market relations. State innovation development programs will help minimize technological lag in economic development. Technological renewal processes will contribute to the strengthening and development of the industrial potential of the state.*

**Keywords:** *innovation, resource potential, transformation, sustainable development, technological cycle*

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## **Drivers for the strategic development of innovative digital economy: macro and meso level**

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**Abstract.** *The article formulates conceptual provisions that reveal the essence of the drivers of the strategic development of the digital economy as a set of economic institutions, which are mediated by information and computer*

technologies used by all participants in the socio-economic system; an integrated approach to the study of the drivers of economic development of the country and regions, taking into account the digital transformation of industrial enterprises, businesses, scientific and educational centers; identified the main drivers of innovative digital economy growth at the macro and meso levels; special attention is paid to cluster structures, industry specifics of regions, the spread of the Internet and its impact on changes in various sectors of the economy; differentiation of digital literacy of the population; The interaction of regional growth drivers for the benefits of digital transformation due to sufficient costs for ICT and investment in human capital is justified.

**Keywords:** Region; Strategic development; Digital transformation; Digitalization; Innovation

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## Methods of structural synthesis of information exchange channels between an unmanned vehicle and a dispatch center

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**Abstract.** The work is devoted to solving the interdisciplinary fundamental scientific task of ensuring the reliability and high throughput of information exchange channels (IEC) between unmanned vehicles (UMV) and dispatch centers (DC) within the framework of the "smart city". Solving the managerial task of providing reliable and high-bandwidth IEC between UMV and DCs in various environments requires the development of an intelligent decision support system to select the level of encryption of information transmitted over open communication channels under uncertainty.

**Keywords:** unmanned vehicle, probabilistic presentation of information, probabilistic display, information and communication networks, communication channel, dispatch center

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## Regional development: instrumental methods modeling dynamics

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**Abstract.** Strategies and programs for the development of individual territories at the federal and regional levels are developed on the basis of prevailing trends and the required effects. For the purpose of adequate calculations, it is necessary to use instrumental methods for modelling the dynamics of socio-economic processes in the regions, which will take into account the conditions and factors of the functioning of economic agents, the accumulation and direction of movement of various types of resources, the current market situation, and so on. The article focuses on the fact that decision support systems involve the use of regression analysis models, but their direct application to study the economies of new constituent entities of the Russian Federation rests on an insufficient amount of information. In this regard, the task arises of creating such a procedure for evaluating the parameters of the regression model, which would give a real reflection of the dynamics of regional development and allow for adequate decisions to be made. It is proposed to use an exploratory factor analysis as its solution. Based on the calculations using statistical data on the city of Sevastopol, the authors concluded that since 2016, the industrial and financial factor has had a positive impact, and since 2017, the investment factor has become dominant in the development of the urban economy.

**Keywords:** regional development, dynamics modelling, instrumental methods, region, city of Sevastopol, exploratory factor analysis

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# Debugging the Digital Twin of the Inter-Cluster Interaction Mechanism

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**Abstract.** *In order to optimize the evolution of innovation-industrial clusters and their interaction among themselves, a model of creation and debugging of a digital twin of inter-cluster interaction has been proposed within the framework of a separate federal district of the country. The model includes selecting and adjusting the parameters of the digital twin, building and debugging its model, and debugging the simulation algorithm. Economic, financial, information and logistics are considered as the most important directions of inter-cluster interaction. At the same time, the natural population growth of the region where a cluster is located is taken as the main characteristic of the success of such interaction. The use of such technology will allow to avoid premature unjustified management decisions of the state scale with regard to further development of innovation-industrial clusters located on the territory of a specific federal district of Russia, and, on the contrary, to model the mechanism of inter-cluster interaction on the computer in the form of the corresponding digital twin.*

**Keywords:** *digital twin, intercluster interaction, simulation, simulated annealing*

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# Mechanisms for updating the fishing fleet: new opportunities for Sevastopol

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**Abstract.** *The article deals with the problems of restoration and development of fisheries in Sevastopol. The share of fishing basins in the country's fish market is determined, and the characteristics of the species composition of the main fishing objects are compared. The analysis of organizational forms of development of fisheries enterprises in the Far East and the Kaliningrad region, where for the first time in the industry, enterprises of this specialization United in cluster structures, determined the possibility of using their experience in developing logistics and marketing strategies in the conditions of Sevastopol. The rationale for the feasibility of creating a fish cluster in Sevastopol is given, and the main directions of its activities at the first stage are defined, including marine fishing, marine farms and aquaculture. Options for using public-private partnership mechanisms to restore the fishing marine and ocean fleet in the medium and long term are proposed, with justification for various forms of financing and initiating agreements. The article substantiates the possibility of using infrastructure mortgages in public-private partnership agreements to Finance the construction of ocean-going vessels.*

**Keywords:** *fisheries, organizational forms of development, clusters, fishing fleets, public-private partnerships*

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# Socio-economic prerequisites for the development of ecotourism of the Kerch Peninsula

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**Abstract.** *This article discusses issues related to the state of ecological tourism, as well as problems and socio-economic prerequisites for its development on the territory of the Kerch Peninsula. The Republic of Crimea is a unique natural site for the development and establishment of ecological tourism in Russia. However, ecological tourism in the Crimea is very poorly developed. Despite the small share of the development of ecotourism in the Crimea, it is concentrated in the mountainous part and on the South Coast. Underestimated are the natural conditions of the Kerch Peninsula, which, with the right marketing approach, could occupy the free economic niche of this tourism industry, because the main potential for the development of ecotourism in the region is its unique natural resources, which determines the choice of the subject of this study.*

**Keywords:** *ecological tourism, the Kerch Peninsula, specially protected natural territories, tourist potential, socio-economic prerequisites, development of the region, natural monuments, historical and cultural heritage*

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# Harmonization of economic interests of the enterprise and his workers

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**Abstract.** *The issues of formation of a mechanism for effective motivation of enterprise employees as a system of influence on various aspects of social and labor relations should be considered.*

*The aim of the study is to minimize the costs of the enterprise for the formation and content of labor resources and maximize the results from their use by forming an effective motivational mechanism. During the research, methods of theoretical generalization, analysis and synthesis, economic and statistical methods, such as comparison, grouping, were used.*

*As a result of the study, a methodology for the formation of a motivational mechanism at enterprises as an instrument for integrating the economic interests of a business entity and its employees in the context of motivation of organizational and managerial personnel, operating personnel, personnel interacting with the external environment, and auxiliary personnel is proposed. The purpose of the functioning of the motivational mechanism, which is to optimize the costs of the enterprise by increasing labor efficiency, is determined. The components of the motivational mechanism are considered, the characteristic is given to the forms, methods, tools and levers of the motivational mechanism. Attention is focused on the key elements of the motivational mechanism of the enterprise - forms and systems of remuneration, on such levers as tangible and intangible incentives, sanctions. Attention is paid to planning and forecasting, the norms and standards in the management system of the motivational mechanism of the enterprise. The necessity of introducing ISO quality standards aimed at ensuring attractiveness of employment conditions for employees, improving their working conditions and living standards is substantiated.*

*In the future, questions will be considered of forming a flexible system of labor motivation for employees of the enterprise, providing incentives for individual performance indicators of the employee, his structural unit and the enterprise as a whole with a goal. optimizing its costs and increasing the effectiveness of activities.*

**Keywords:** *motivational mechanism, forms, methods, tools, leverage, costs, profits, quality standards*

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## **Regional road infrastructure: spatial and functional differentiation and strategic positioning**

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**Abstract.** *Purpose: to determine the spatial and functional specialization of road infrastructure in the Russian regions on the basis of evaluation of the interaction of road infrastructure with socio-economic subsystems of the regional economy, to identify areas for improvement of strategic positioning of road infrastructure in the regions.*

*Methodology: The virtual clustering method was used to identify territorial and functional specifics of road infrastructure in the Russian regional space and grouping of regions. For clustering of regions, the method of grouping and K-average was used. For each cluster, representative regions with minimum distance to the centres of virtual clusters were identified. Correlation-regression analysis was used for trend analysis.*

*Results: The article presents the results of the distribution of Russian regions in 5 clusters formed by indicators that characterize the intensity of road infrastructure services to the target functions of the regional economy for the period 2012-2017. A brief description of the received clusters is given. Subsystems-donors (they show the maximum for each cluster service intensity) and subsystems-recipients (they show the lowest values of service intensity) are distinguish. In each cluster, the representative regions are identified. The dynamics of road infrastructure service' intensity of socio-economic subsystems (production of value - GRP, mining and manufacturing industries, agriculture, construction, wholesale trade, investment in fixed capital, population) were analysed and trends were identified. A review of strategic positioning of road infrastructure in the regions was made based on the study of strategic planning documents developed in the representative regions. Prospective directions of strategic positioning of road infrastructure by clusters have been defined.*

**Keywords:** *road infrastructure, target functions of the regional economy, region, clusters, cluster representative, strategic positioning*

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# Social technologies and import substitution for social institutions

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**Abstract.** *The key features of social technologies imported to our country are identified: "revision of the past", "fifth wheel", "color revolutions", "controlled chaos", "Overton window" and others aimed at dismantling the institutions of Russian statehood and undermining the territorial integrity of the country. Examples of successful testing of these technologies by Western sociotechnologists in various spheres of public life in Russia, including with the participation of various groups of the population of Russia itself, are given. Special attention is paid to the introduction of imported social technologies in the fields of science and education and the consequences of inaction of the state authorities, which leads to a rapid collapse of these areas. The conclusion that the formalization of institutions in the fields of education and science is the most important institutional trap of managerial decision-making is substantiated. Recommendations on import substitution of appropriate social technologies are offered.*

**Keywords:** *social technologies, import substitution for institutions, research and education management, institutional trap, national security, formalization of institutions*

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## Methods of countering unfair practices in the russian securities market

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**Abstract.** *The aim of the study is to study modern methods of counteracting unfair practices existing in the domestic securities market and assess their effectiveness. The methods of comparative analysis and synthesis, induction and deduction, study and generalization are used. The problem of the effectiveness of the modern system of counteracting insider trading and manipulation is revealed, and the main reasons for its low efficiency are described. The author presents a classification of modern methods of counteraction. A comparative analysis of foreign and domestic practices in the fight against dishonest practices is carried out. As a solution to the existing problem, the introduction of a third group of methods is proposed that takes into account the peculiarities of the organization and functioning of the domestic market. The study of the domestic practice of combating insider trading and manipulation is necessary to identify the reasons for the low information efficiency of the market, one of the factors of which is the increase in the number of unfair practices. Based on this work, it is possible in the future to develop an effective mechanism to counter insider trading and manipulation.*

**Keywords:** *securities market, stock exchange, insider, insider information, insider activities, unfair practices in the securities market, manipulation of the securities market*

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## The relationship between the categories of "Bank Capital" and "Lending": innovative approaches

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**Abstract.** *The study presents the theoretical analysis and practical significance of the process of formation of the bank's capital and the relationship of this process with lending. The current capital reserve of banks must be sufficient to issue loans with a high level of risk. Therefore, it is advisable for banking institutions to have an amount of capital higher than the level of sufficient, according to regulatory documents. Profit directly depends on the strategically competently formed capital of the bank, which is the main goal of the commercial bank. The study presents innovative approaches related to the close relationship between the categories of "capital" and "lending": to contain the ever-growing volume of loans, it is proposed to apply premiums to the risk factor for loans. At the highest allowances, the capital of the banking institution should be increased, otherwise the standards will not be met; in addition to the previous approach, it was proposed to introduce a quantitative restriction on lending. It is shown that the lending process is inextricably linked with the capital of a banking institution.*

**Keywords:** *banking institution, capital, loans, resources, sufficiency, profit*

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## Role of the best available technologies to develop the region's innovative potential

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**Abstract.** *Currently there is a rising necessity to coordinate the federal and regional innovative policy, to regulate the barriers for the innovative activity in the Russian regions. The authors suggest considering the best available technologies (BAT) as an effective tool to stimulate ecologically oriented activities of business entities and competitive economic potential of the region.*

*One of the key approaches to form a sustainable development concept, i.e. for the long-run prospect of the regional economic system development is to introduce the principles of the best available technologies based on the active application of the promising energy-efficient environmentally friendly technologies to minimize negative impact on the environment. The BAT principles introduction allows implementing complex protection from the negative impact of the industrial enterprises on the environment through the updating of fixed assets for the implementation of resource-saving technologies, subject to their technical feasibility.*

**Keywords:** *the best available technologies, region's innovative potential, sustainable development, innovations*

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## Innovative application of non-positional representation of information in the form of probabilistic mappings

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**Abstract.** *The development of modern, as well as the creation of advanced information systems (IS) requires the creation of a unified architecture, with unified hardware and software based on integrated integration, not only at the technical, but also at the functional level, of the components of the IS system. The implementation of this structure leads to a multiple increase in the amount of computation over large-capacity data arrays conducted in real time, and the complexity of computational algorithms. As a result of this, sharp contradictions arise between hardware costs, speed, accuracy and fault tolerance. The work is enlightened to the formation of a methodology for the probabilistic representation and transformation of information (PRTI) and the development on its basis of methods, methods and algorithms for the synthesis of computing devices (CD) and components for promising and existing IS built on a domestic element base, which is becoming an effective and high-tech tool for -additions of these contradictions.*

**Keywords:** The probabilistic form of representation and transformation of information, probabilistic mapping, real-time measurements, calculation error, pseudo-probable form of representation and transformation of information, specialized probabilistic processors, accuracy, speed, universal probabilistic processors, computing devices

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## Institutional design of the development of network interaction in the digital economy

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**Abstract.** The article is devoted to the study of institutional design of the development of network interaction in the digital economy. The authors consider the modern aspect of developing networking through digital platforms. It is emphasized that the development of Industry 4.0 fundamentally changes the principles of production organization, relations between the producer and the client, transforms the market, industry, society, practices of information exchange and process management. Based on an analysis of the different approaches to defining digital platforms, the importance of having multiple platforms based on their economic impact is justified. The most important motivation for the transition to digital platforms in the management of technological processes in the industry is: new requirements to the product (high level of technological efficiency, reduction of the cost of the product and its life cycle). A key challenge here is to find a managerial balance between effectively stimulating the development of national digital platforms and regulating their activities for the benefit of all user groups. The formation of institutional design of network interaction in the digital economy should be based on an array of institutions of mesoeconomics, which will allow to project the development of ecosystem economy in the future.

**Keywords:** Digital economy, digital platforms, industry, networks, networking, institutional design

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## Technology for implementing the model of fuzzy assessment of competence formation

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**Abstract.** The article deals with the technology of software implementation of the model of fuzzy assessment of competence formation. For this purpose, a fuzzy inference system based on parameterized de-scriptorization models of competencies has been developed. The system is considered as a structure of learning outcomes such as "know", "be able", "own", which determines the indicators of competence achievement. Descriptors of indicators of competence achievement are considered as a triad "Epithet", "Activity", "object of control" and formalized at the structural level as fuzzy characteristics of competence formation in relation to learning results and testing control tasks using the fuzzy logic apparatus. As a result of the work, a model-tool complex was designed that allows organizing the configuration of fuzzy descriptors, fuzzy classification of ZUN, and fuzzy assessment of competence formation. The interface of the model-tool complex allows you to provide students with access to tasks, experts and teachers to organize a fuzzy assessment of the formation of ZUN, as well as to form an objective set of tasks.

**Keywords:** model-tool complex, web-application, competence achievement indicator, fuzzy descriptor model, fuzzy logical conclusion, expert judgments

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# The study of forecasting methods in the tasks of analyzing environmental monitoring data

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**Abstract.** The article considers to provide short-time forecasts of environmental pollution by methane emissions for environmental monitoring system's data. The study aims to develop a methodology for solving the problem of accurate prediction of the air pollution level. The authors performed comparative analysis of the following models: autoregressive integrated moving average (ARIMA) model and Long short-term memory (LSTM) artificial recurrent neural network (RNN) model. Python-based solution was used for analysis and visualisation. Statsmodels module was used for statistical models estimation. Pytorch library was used for the neural networks development.

*The results of the study.* The ensemble methods is suggested as prospective approach for providing short-time forecast. Two-versioned adoptive models system can be an integral part of decision support system in ecological monitoring complex system.

*Future research directions.* The developed methodology may be extended to different types of data analysis tasks in the field of environmental monitoring as a part of complex solution.

**Keywords:** environmental monitoring, data analysis, forecasting, ARIMA, LSTM, neural network prediction models

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# The convergence of the main educational paradigms as a legitimate stage in the development of the education system

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**Abstract.** The main educational paradigms are considered, to one degree or another, developed in the Russian sphere of education. The necessity of their convergence in order to improve the quality of education is shown. An integration approach to the organization of professional educational programs is presented. Based on this approach, a convergent paradigm of vocational education has been developed, which is based on a fundamental system of organization of professional educational programs. In accordance with this fundamental system, a model-instrumental complex has been developed. Its research into the implementation of the convergent paradigm into the real educational process in the light of the developed approach allowed us to obtain the best characteristics of models, which allows us to effectively model and organize a high-quality professional educational program. The developing aspect of the convergence of educational paradigms is shown, which consists in improving the quality of professional training.

**Keywords:** organization of professional educational programs, educational results, model-instrumental complex, educational paradigms, convergent paradigm, regulatory principles

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# Assessment of state of key economic sectors of Crimea under sanctions pressure

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**Abstract.** Since 2014, in connection with the return of the Republic of Crimea and Sevastopol to the Russian Federation, the sanctions pressure on Russia has been significantly increased. Sanctions against Russia have been imposed by EU, United States of America, Canada, Australia and Japan and Ukraine.

Targeted pressure is exerted on the system-forming branches of the Russian economy, contributing to a possible increase in the processes of social tension for several reasons. Among them a decrease in the volume of funds raised in the economy of Russia and certain regions.

The paper presents the results of neural network modeling of the probability of including enterprises based in Crimea in the sanctions lists. Enterprises that belong to the key sectors of the region's economy (industry, agriculture, construction, and the sanatorium and resort complex) are examined.

**Keywords:** Crimea, sanctions, economy, key economic sectors, modeling, neural networks

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## Problems of regional food industry development

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**Abstract.** This article examines the current state as well as difficulties in the development of the food industry in the Republic of Kazakhstan, including in the Kyzylorda region. The article considers the relevance and necessity of developing food industries and supporting enterprises engaged in processing agricultural products and food products to improve the competitiveness of the regional and national economy in modern conditions. The analysis of the current state of the food industry in the Republic of Kazakhstan is given, as well as the volume of industrial production by regions. We consider the index of industrial production in the Republic of Kazakhstan and by region for the period from 2014 to 2018, inclusive, as a percentage of the previous year. The structure of food industry branches in Kazakhstan is given. The dynamics of food production for the period 2015-2016 in the Republic of Kazakhstan was studied. The indicators of industrial and socio-economic condition of the Kyzylorda region for 2018-2019 are studied. Statistics on agricultural production growth of the Kyzylorda region: production and processing of crop and livestock products, fisheries are provided. This article uses indicators of the MNE Statistics Committee of the Republic of Kazakhstan. Based on the analysis, the priorities of regional development were determined, as well as some difficulties in food production and the main problems of food industry development in the Kyzylorda region were formulated.

**Keywords:** food industry, region, industrial production, analysis of the current state, competitiveness, food industry, food products

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# Research of the impact of interaction cluster mechanisms on ensuring food security in the region

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**Abstract.** The topicality of food security is given special attention, both at the regional and Federal levels. An important aspect is the identification of ways and mechanisms that can have a positive impact on the level of food security. In this regard, the article substantiates the urgency of using cluster structures in the issue of ensuring food security. The main features and principles of existing instruments of inter-firm cooperation, distinguishing their features in the aspect of use in the agro-industrial sector, are disclosed. Foreign experience of using cluster structures as a tool to promote food security is considered. The analysis of existing approaches to assessing the degree of influence of cluster interaction mechanisms on ensuring food security in the region is made, and as a result of the analysis, the author's algorithm for assessing the impact of the functioning of agro-cluster structures on the level of food security in the region is proposed.

**Keywords:** cluster structures; networking interaction; agro-industrial sector; food security; regional economy

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## Comparative analysis of methodological approaches to assessing competitiveness - factor in ensuring economic security of the region

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**Abstract.** The relevance of the study is, *umo* within the framework of the prevailing theory, it is called upon to formulate modern scientific views on the relationship between regional competitiveness and economic security, taking into account new socio-economic realities. The peculiarity of the study lies in the application of methods of interdisciplinary synthesis and assessment of the region, as territorial socio - ecological - economic system.

Theoretically disclosed - methodological approaches to assessing competitiveness in conjunction with economic security, the specificity of depressed regions as objects of regional economic security is substantiated.

The results of a study of the competitiveness of the Republic of Kalmykia are presented. socio - ecological - whose economic system, characterized by challenges and threatsThe region has been depressed for many years, is in the top ten outsiders of the constituent entities of the Russian Federation in terms of social - economic development.

An integral assessment of socio - ecological - *экономических* indicators, a complex of destructive factors is formed, defining threats to the economic security of the Republic of Kalmykia. Promising areas for neutralizing threats and overcoming negative factors in the development of the real sector of the economy have been outlined., increase the competitiveness of the region..

**Keywords:** economic security, competitiveness, socio - ecological - economic system, Republic of Kalmykia

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## Digital business in regional development

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**Abstract.** *The article discusses the role of the business of information technology in the Russian economy, its significance and prospects, the impact on the modern economy of the country's regions. The need to develop information technology and digital business is confirmed by the dynamic growth of the information and communication technology sector in the gross value added of the business sector and the number of employed leading countries of the world economy. In the Russian Federation, these indicators are significantly lower than the leading countries. At the regional level, the information business in programs and strategies is declared by the relevant authorities as one of the priority areas that ensure the development of regions, but its condition remains unsatisfactory. The main constraints were identified: insufficiency and inefficiency of support measures, lack of qualified personnel, and «brain drain».*

**Keywords:** *digital business, regional development, information technology, development strategy, information society*

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## **Analysis of the need to introduce renewable energy sources in the energy balance of an industrial enterprise**

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**Abstract.** *This work is aimed at the analysis and justification of the possibility to use renewable energy sources (RES) for industrial enterprises on the Volgograd region example. Research is being conducted all over the world, its purpose is the search for the most effective non-traditional renewable energy sources, the use of which will allow the transition to resource-saving energy. Since the potential of application in various power systems is practically unlimited, the analysis of the RES implementation in industrial enterprise balance sheet taking into account the natural features of the Volgograd region possibility currently appears to be an urgent task requiring a comprehensive study. Traditional power supply systems used in industrial enterprises are characterized by relatively small initial investments, high annual fuel consumption and the cost of maintaining systems, while systems based on nontraditional and renewable energy are characterized by high initial investments, but also high resource savings and low operating costs. For industrial enterprises in the context of a market economy the most pressing issue is the saving of funds and optimization of current costs, in connection with which the issue of developing the most effective not only in technical but also in economic terms RES, the introduction of which is consistent with the existing energy system of the organization, becomes particularly relevant. A major leap in the production of electricity based on renewable energy sources could change this situation. The existing significant potential of wind and solar energy in the Volgograd region, as well as the possibility of implementing small distributed energy, determine the priority direction of improving the efficiency of electricity consumption in the region, and can also serve as a driver for overcoming the region's lag in socio-economic indicators.*

**Keywords:** *renewable energy sources, fuel and energy resources, energy saving and energy efficiency, industrial enterprises, Smart Grid*

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## **Withdrawal of funds abroad as a risk factor for the state economy**

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**Abstract.** The article deals with the issues of money withdrawal from the territory of the country: causes and consequences, impact on the economy, signs of a threat to economic security. The author considers the approaches that have been developed in the scientific literature to the regulation of transnational cash flows from the standpoint of their ability to counteract shadow turnover. Based on the methodology for calculating the ease of doing business index proposed by the world Bank, a comparative analysis of the volume of withdrawals from various countries, including the Russian Federation, was conducted. The study has established criteria used to classify the output of capital abroad in the form of money to a number of negative economic phenomena, the basic causes and symptoms of such risks, the proposed framework for the formation of the mechanism of regulation of movement of funds from the standpoint of limiting the negative impact on all spheres of activities with a focus on the private sector as a key figure in the transformation process of resources into the shadow economy.

**Keywords:** capital outflow, state economy, cash outflows, shadow economy, economic security

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## Financing of social policy at the regional level in the Russian Federation

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**Abstract.** The article analyzes the process of financial support of social policy of the state at the regional level. The main condition for successful implementation of Federal and regional government programs is the continuity and stability of funding from various sources. They can be centralized or decentralized. The largest share is made up of Federal and regional budgets, as well as funds from extra-budgetary funds. It is proposed to evaluate the objectivity of the financing process using indicators of financial support for social policy and its components. To calculate the coefficients, data on inter-budget transfers and expenditures on certain areas of social policy were used. In order to characterize the quality of the financing process, the authors propose to estimate the duration of implementation of social protection measures using the coefficient of financing capital investments in social policy. The analysis revealed a progressive increase in inter-budget transfers, which indicates an increase in spending on social policy, rather than an activation of redistribution processes. However, the indicators of long-term implementation of social protection measures are decreasing, which may negatively affect the quality of life of the region's population.

**Keywords:** social policy, financing of social policy, sources of financing, indicators of financial support of social policy at the municipal level, socially unprotected segments of the population, inter-budget transfers, capital investments in the social sphere, pension provision, maternity and childhood protection, social services of the population

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## Crowdfunding as innovative form of project financing.

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**Abstract.** The article discusses crowdfunding platforms. This financial system is based on digital data distribution and processing, as well as automated service delivery. The fields of application of crowdfunding platforms have been studied, their advantages have been considered. Today crowdfunding platforms have the potential to become an alternative form of financing, an additional ounce of borrowing, including for small and medium-sized businesses. Platforms are able to attract financing through the realization of Internet technology opportunities. They have no territorial restrictions, and therefore, companies and individuals from the most remote regions can be involved to finance projects through crowdfunding platforms. Platforms can provide credit resources for high-risk or unsecured projects. In Russia, attracting investments by using platforms is not developing as rapidly as in the United States and

European countries. The article considers the possibilities of using crowd funding platforms in Crimea and Sevastopol as an alternative to bank lending.

**Keywords:** financial technologies, crowdfunding, online platforms, financing

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## Features of infrastructure organization of regional innovation clusters

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**Abstract.** The article deals with the development of the region 's economy through the organization of innovative infrastructures. The aim of the study is to identify the main features of cluster structures, their role in the innovative development of the region 's economy, and to increase the competitiveness of enterprises in foreign and domestic markets. The methodology of the study is based on comparative analysis, statistical methods, logical-historical method and system approach, modern cluster approach. The authors argue that one of the most effective forms of interaction at the regional level is innovative clusters. At the same time, the authors propose a list of interrelated processes of integration of members of the innovation cluster. The main business models of the regional cluster are considered. Key factors in the formation of regional innovative infrastructures in the dynamics of this process have been identified. Promising directions of further research are related to the search for ways of innovative development of the region in the conditions of the digital economy.

**Keywords:** regional development, innovation clusters, infrastructure, business model, integration of innovation cluster

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## Impact of state support for small and medium businesses on their growth dynamics

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**Abstract.** The article presents the directions of state financial support for small and medium-sized businesses (SMEs) from 2013 to 2018 based on the correlation and regression model, the effectiveness of their influence on the dynamics of trade turnover growth is estimated. The model considers the total turnover of SMEs as an explanatory variable. The volume of financial support from the state and loans, as well as the number of SMEs, are considered as regressors. It is shown that the amount of state financial support to SMEs does not affect their turnover, while the volume of loans issued to SMEs and their number are significant variables that affect trade turnover. Estimates of the parameters of the linear multiple regression model and the average approximation error are given, and its adequacy is shown based on statistical tests. The article analyzes the reasons for insufficient effectiveness of state support for small and medium-sized businesses in the field of lending.

**Keywords:** econometric model, trade turnover, government support, loans, small and medium businesses, finance

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# Assessment of human capital: approaches and challenges

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**Abstract.** The article explores the main approaches of international organizations to the human capital assessment at the macroeconomic level. The purpose of the study is to consider separate approaches to the human capital assessment at the macroeconomic level, to identify problems and offer solutions. The study is based on index, factor and institutional approaches to the total human capital assessment. Using traditional indicators, demographic, educational, scientific, economic characteristics and health factors of human capital are analyzed. Forming the methodology of the human capital integral assessment, the author included indicators of the institutional system impact on the human capital. To the most significant institutions of direct impact on the human capital formation and development processes, the author includes the institutes of education and science, demography, the population involvement in economic activity, the protection of health, motherhood and childhood. Further studies suggest an increase in the number of analyzed factors that affect on the state and level of the total human capital.

**Keywords:** human capital, human capital assessment, human capital index, human development index, knowledge economy index, institutions, factors

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## Balanced key performance indicators of IT-services in ecological monitoring processing systems

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**Abstract.** The article aims to study key features of IT service quality management in distributed ecological monitoring and computing systems. Main actors and list of key performance indicators of data analysis processes have been identified and described.

The results of the study. A hierarchical model of key performance indicators is proposed for building a balanced scorecard, which includes the following groups of indicators: data provider requirements, data consumer requirements, big data framework provider requirements, big data application requirements, technical indicators, IT service support metrics.

Future research directions. The development and practical use of the proposed balanced scorecard of IT services will improve the efficiency of the big data processing in environmental monitoring systems.

**Keywords:** environmental monitoring, big data processing, IT service quality, distributed computing environments, balanced scorecard

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## Modeling of business processes of innovative activity of Russian regions

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**Abstract.** *The article deals with the management issues of modeling domestic innovation activity in the industry of the Russian Federation subjects. Theoretical approaches to modeling, practice of organization of innovation activity modeling on the example of the Samara region are presented.*

*A significant result of the work is the author's proposal for the organization of a cluster-network model of innovative development of the region. The directions of implementation of the model of innovative development of the region are suggested.*

**Keywords:** *modeling, efficiency, subjects of the Russian Federation, innovation activity, development, innovation potential of the region, industrial, innovation life cycle*

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