

## ANNOTATIONS OF THE ARTICLES

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## ENERGY-EFFICIENT SMART SOLUTIONS: PROBLEMS AND PROSPECTS FOR DEVELOPMENT IN THE RUSSIAN MARKET

*The purpose is to determine the place of smart technologies in increasing the energy efficiency of the Russian economy. A dialectical approach to the study of the development of energy efficiency enhancement technologies and methods of their implementation into practice allows to analyze the barriers, historically arising on the path of progress in this area in the context of objective and subjective factors. The dialectical approach defined the choice of formal-logical methods of the research as the main ones. Based on the analysis of the European statistics, a side-by-side comparison of costs and results of the implementation of smart technologies is conducted; the author's approach to structuring the energy-efficient smart solutions according to the degree of universality and level of localization is offered; four groups of barriers to the successful promotion of energy-efficient smart solutions in the Russian market (institutional and legal, organizational and economic, scientific and technical, information) were pointed. Scientific novelty: in the article for the first time, based on the analysis of the modern paradigm of energy efficiency improvement in different countries, five perspective models of introducing energy-efficient smart solutions have been singled out. Practical significance: the main provisions and conclusions of the article can be used in scientific and pedagogical activity when considering issues of increasing energy efficiency and the introduction of smart technologies.*

**Keywords:** energy efficiency, innovations, smart technologies, resource consumption management, Russian market.

## References

1. Avanesov, V.M., Yakovlev, Yu.S., Samuylova, T.R., Golovkov, S.V. Energy Saving in Russia: Opinions, Comments, Facts / V.M. Avanesov, Yu.S. Yakovlev, T.R. Samuylova, S.V. Golovkov // Energy Saving and Energy Efficiency. – 2009. – Vol. 1 (25). – pp. 29–34.
2. Basichev, B.N., Gajur, A.A. Economic problems of creation and introduction of nanoproducts, nanotechnologies and micro-system technology / B.N. Basichev, A.A. Gajur // Economically Efficient and Environmentally Friendly Innovative Technologies: Materials of the international scientific and practical conference 18 December 2013 / Edited by V.A. Umnova. – Moscow: Plekhanov Russian University of Economics, 2013. – pp. 92–117.
3. «Energy saving» and «energy efficiency»: clarification of concepts, the system of balanced indicators of «energy efficiency» / V.V. Efremov, G.Z. Markman // Bulletin of the Tomsk Polytechnic University. – 2007. – Vol. 311. – Vol. 4. – pp. 146–148.
4. Kaveshnikov, N.Yu. European Union policy in the field of energy conservation / N.Yu. Kaveshnikov // Bulletin of the Moscow State Institute of International Relations. – 2014. – Vol. 3. – pp. 109–115.
5. Kanygin, P.S. Investigation of Energy Saving Problems in the European Union / P.S. Kanygin // Economic Science of Modern Russia. – 2009. – Vol. 2 (45). – pp. 91–103.
6. Korshunova, L.A., Kuzmina, N.G., Kuzmina, E.V. Problems of energy saving and energy efficiency in Russia / L.A. Korshunova, N.G. Kuzmina, E.V. Kuzmina // Proceedings of the Tomsk Polytechnic University. – 2013. – Vol. 322. – Vol. 6. – pp. 22–25.
7. The Russian market of intelligent meters in the distribution of resources - electricity, heat, water and gas until 2020 [Electronic resource] – Access: [//json.tv/ict\\_telecom\\_analytics\\_view](http://json.tv/ict_telecom_analytics_view) – (reference date: 06.05.2017).
8. Chistov, I.V., Yanson, S.Yu. Organization of monitoring the implementation of energy saving programs and improving the energy efficiency of the Russian economy / I.V. Chistov, S.Yu. Yanson // Transport business in Russia. – 2014. – Vol. 2. – pp. 89–93.
9. Shamarova, N.A. Theoretical Aspects of the Concept of Energy Efficiency / N.A. Shamarova // International Scientific Journal «Innovative Science». – 2015. – Vol. 11. – pp. 186–188.
10. Yakovlev, A.S., Barysheva, G.A. Energy Efficiency and Energy Saving in Russia against the Background of Foreign Countries Experience/ A.S. Yakovlev, G.A. Barysheva // Proceedings of the Tomsk Polytechnic University. – 2012. – Vol. 321. – Vol. 6. – pp. 25–30.

## **THEORETICAL PRINCIPLES OF ORGANIZATIONAL AND POWER RELATIONS RESEARCH**

*The object of research is the sphere of organizational relations, and the subject is theoretical principles of their analysis as a mediator of social and individual content of management psychology.*

*The aim of the research is to identify the effective psychological factor; significant, simultaneously, in the motivational and managerial aspects, such are the phenomenon of «Trust» and the subject approach that penetrates into the psychological mechanisms of the organizational relations of the individual and the organization on their contractual basis.*

*The methodological basis is organizational modeling (design of the structure), the main task of which is the optimal correlation of all blocks of the organizational environment with the identification of sources, motives and resources of power relations that should be distinguished from «Influence» – the cause and mechanism of subjective adoption of norms and rules of the organization.*

*The leading approach to the study of this problem is organizational diagnostics – audit that reveals the individuality of the organization, i.e. specific style of inter subject interactions, the organizational climate in the structural (status-role) and dynamic plans (organizational changes and redistribution of power).*

*Heuristically significant conclusions include:*

- the need to correlate the traditionally opposing structural and dynamic aspects;
- analysis of the «leadership-subordination» concept from the point of view of desire, possibility and necessity as socio-psychological modalities of influence and power;
- study of self-determination role in the structure of organizational-power relations;
- search for an optimum conformity of business activity and employee satisfaction with the situation in the organization.

*Prospects of our research are related to the further use of the subject approach, as well as to the deepening of the interaction between organizational psychology, general psychology and management psychology in the analysis of organizational-power relations.*

**Keywords:** *organizational psychology, personnel management, leadership-subordination, socio-psychological structure of power relations, organizational self-government.*

### **References**

1. Bogdanov, A.A. Tectology (Universal organizational science) / A.A. Bogdanov // In 2 vol.: Volume 1. – Moscow: Economy, 1989. – 570 p.
2. Vikhansky, O.S. Strategic management / O.S. Vikhansky. – Moscow: Gardariki, 1998. – 453 p.
3. Zabrodin, Y.M. Personality Psychology and Human Resource / Y.M. Zabrodin. – Moscow: Finstatinform, 2002. – 360 p.
4. Zankovsky, A.N. Organizational Psychology: textbook for higher educational institutions / A.N. Zankovsky. – Moscow: Flinta, SAG, 2000. – 648 p.
5. Kupreychenko, A.B. Moral-psychological determination of economic self-determination of individuals and groups: abstract diss. ... Doctor of Psychological Sciences / A.B. Kupreychenko. – Moscow, 2010. – 38 p.
6. Strelets, Yu.Sh. The meaning of human life, from history to eternity: monograph / Yu.Sh. Strelets. – Orenburg: IPK «University», 2012. – 620 p.
7. Shaw, R.B. Trust in the Balance: Building Successful Organizations on Results, Integrity and Concern / R.B. Shaw. – Moscow: Case, 2000. – 426 p.
8. Yakhontova, E.S. Confidence in personnel management. Foreign and domestic experience approaches assessment / Sociological Studies / E.S. Yakhontova. – 2004. – Vol. 9. – pp. 118–129.
9. Paysons, T. Politics and Social Structure: On the concept of political power / T. Paysons. – New York, 1969. – 297 p.
10. Moscovici, S. Social influence and social change / S. Moscovici. – London, Academic Press, 1976. – 412 p.
11. Jeffrey, P. Managing with Power / P. Jeffrey. – Boston, Harvard Business school, 1992. – 397 p.

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**METHODS OF ASSESSING THE COMMERCIALIZATION OF MARKETING INNOVATIONS ON THE EXAMPLE OF THE BAKERY INDUSTRY**

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*One of the important aspects of commercialization is the consideration of the effectiveness of innovation. Evaluation of the effectiveness of marketing innovation is no exception. The lack of educational provisions for the selection of the most appropriate methodology for assessing the commercialization of marketing innovations with market orientation determined the relevance of the research problem.*

*The aim of the study is to develop a technique for calculation the degree of commercialization of marketing innovations. The proposed assessment methodology is based on the provisions that commercialization is the mechanism of interaction of tools and methods.*

*For the development of methodical provisions the simulation methods; comparative and system analysis; systematization and generalization; methods of market research; method of expert evaluations were used. The method of the degree calculation of marketing innovations commercialization with regard to bakery production is based on calculating the commercialization rate. The rate of commercialization is calculated on the basis of the mechanism and depends on the use of means, tools and methods in the commercialization of marketing innovation. The method was tested with respect to marketing innovation «Change in product design» with the specific applications of this type of marketing innovation. Evaluation of the effectiveness of marketing innovations includes the following stages: preparatory, basic and final.*

*The practical results were used by commercial organizations to enhance the effects of the commercialization of marketing innovations. The results of theoretical and methodological researches are used by educational institutions in the development of training courses in marketing and marketing innovation.*

**Keywords:** marketing innovations, mechanism of commercialization, commercialization technique.

**References**

1. Belotserkovsky, N.V., Ivanchenko, O. P. Problems of the mechanism of commercialization of marketing innovations at bakery enterprises / N.V. Belotserkovsky, O.P. Ivanchenko // Practical marketing. – 2015. – Vol. 8. – pp. 12–20.
2. Ermakova, J.A., Belotserkovskaya, N.V., Ivanchenko, O.P. The value and content of concepts: marketing of innovations, innovative marketing, marketing innovations // Innovation. – 2014. – Vol. 06 (188). – pp. 49–54.
3. Ivanchenko, O.P. Commercialization of marketing innovations within the framework of the process approach // Economics and entrepreneurship. – 2014. – Vol. 5 (part 2). – pp. 823–828.
4. Kalinin, R.G. Current market situation, problems and ways of their solution // Bread products. – 2015. – Vol. 1. – pp. 44–45.
5. Korotkova, T.L., Vlasov, A.V. Role of marketing in the commercialization of innovations // Practical marketing. – 2010. – Vol. 3. – pp. 12–17.
6. Kosovan, A.P., Shaposhnikov, I.I. Program for the development of the baking industry till 2020 // Baking in Russia. – 2011. – Vol. 4. – pp. 4–13.
7. Leszczynskaya, A.F. Commercialization of projects as the basis for financing // Management in Russia and abroad. – 2011. – Vol. 4. – pp. 28–34.
8. Matkowskaya, Ja.S. Marketing of the commercialization of innovation: the rationale for the development of a new direction of marketing // Marketing in Russia and abroad. – 2011. – Vol. (85). – pp. 126–136.
9. Rozdolskaya, I.V., Likhonin, K.V. Formation of system of market positioning and the use of results of innovative activity in the implementation of the concept of marketing of innovations // Bulletin of the Belgorod University of cooperation, economics and law. – 2011. – Vol. 3. – pp. 65–74.
10. Schumpeter, A. Theory of economic development. – Moscow: Direct-Media, 2007. – 400 p.
11. Yakovets, Y.V. Epochal innovation of the XXI century. – Moscow: Economics, 2004. – 439 p.

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**STAFF RESOURCES OF THE REGIONAL LABOR MARKET AS SUBJECT OF STATISTICAL RESEARCH**

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*Demand and supply in the Russian labor market are not balanced in some professions. The staff resources potential both in the whole country and at the regional level is used inefficiently. Studying the regularities of the formation of staff resources is the actual direction of research because it allows us to form a methodical basis for "linking together" the interests of employers, the system of professional education and the government in the process of regulating labor relations.*

*The purpose of the research: the development of methodological provisions of statistical study of the staff resources at the regional labor market. Research methods were used such as analysis, synthesis, method of deduction, monographic method, abstract-logical method, comparative method.*

*As a result of critical analysis of scientific publications on this issue, the authors had clarified the notion of "forming the staff resources of the regional labor market", as well as defined the place of staff resources in the system of social and economic potential of the territory, listed the human resources of the regional labor market as a subject of statistical research and presented a step-by-step methodology of its statistical research.*

**Keywords:** *staff resources, region, labor market, subject of research, statistical analysis, theoretical positions.*

### References

1. Analysis of the interaction of the system of secondary vocational education and employers using the work of workers in mass vocations and specialties. News bulletin. – Moscow: National Research University «Higher School of Economics». – 2017. – Vol. 6 (105). – 48 p.
2. Bashina, O.E. Transformation of the tasks of higher education at forming personnel potential of Russia in the post-industrial economy / O.E. Bashina, Y.N. Tsaregorodcev, L.V. Matraeva, V.N. Nikolenko // News of the Tula State University. Economic and Law Sciences. – 2016. – Vol. 2–1. – pp. 88–97.
3. Bobkov, V.N. The impact of unsustainable employment on youth transition in the labor market / V.N. Bobkov, E.A. Chernykh // The standard of living of the population in the regions of Russia. – 2014. – Vol. 3 (193). – pp. 23–55.
4. Varshavskaya, E.Ya. Russian employees with higher education: analysis of areas of study / E.Ya. Varshavskaya // Statistics Questions. – 2016. – Vol. 9. – pp. 65–74.
5. Vodopyanova, A.I. The impact of changes in the Russian legislation in 2001-2002 on informal employment / A.I. Vodopyanova, L.A. Leonova // Russian Journal of Economic Theory. – 2016. – Vol. 1. – pp. 96–105.
6. Degtyaryova, T.D. Reproduction and use of labor resources in agricultural region / T.D. Degtyaryova, E.A. Chulkova, M.M. Mursalimov, L.I. Rakhmatullina // Bulletin of the Ural Federal University. Series Economics and Management. – 2015. – Vol. 14. – Vol. 4. – pp. 642–664.
7. Zaloznaya, G.M. The content of regional socio-economic policy in the sphere of employment: theoretical approach / G.M. Zaloznaya, N.B. Iskhakova // Bulletin of the Orenburg State University. – 2015. – Vol. 8 (183). – pp. 54–57.
8. Larina, T.N. Statistical research of factors of the regional economy's demand for skilled personnel / T.N. Larina, I.N. Vygolova, L.V. Benkovskaya // Journal of Economy and Entrepreneurship. – 2016. – Vol. 10–2 (75–2). – pp. 632–639.
9. Pankova, S.V. Modelling the impact of socio-economic factors on gross regional product / S.V. Pankova, A.P. Cypin // The economic analysis: theory and practice. – 2015. – Vol. 45 (444). – pp. 2–14.
10. Prosalova, V.S. Approaches determining needs of staffing health system / V.S. Prosalova, E.N. Smolyaninova // Modern problems of science and education. – 2014. – Vol. 6. – pp. 381–388.
11. Simonova, M.V. Demographic aspects of the formation of the labor potential of the Samara-Togliatti agglomeration / M.V. Simonova, O.F. Chistik // Bulletin of the Samara State University of Economics. – 2015. – Vol. 5 (127). – pp. 55–58.
12. Tikhonova, E.A. Human Resources Management in the Region in Relation to Sustainable Development / E.A. Tikhonova // Russian Entrepreneurship. – 2010. – Vol. 10. – pp. 144–147.
13. Dörrenbächer, Ch., Gammelgaard, J., McDonald, F., Stephan, A., Tüselmann, H. Staffing Foreign Subsidiaries with Parent Country Nationals or Host Country Nationals? Insights from European Subsidiaries // Working Papers of the Institute of Management Berlin at the Berlin School of Economics and Law [Electronic resource] – Vol. 74. – Date: 09/2013. – Access: [www.mba-berlin.de/fileadmin/user\\_upload/MAIN-dateien/1\\_IMB/Working\\_Papers/2013/WP74\\_online.pdf](http://www.mba-berlin.de/fileadmin/user_upload/MAIN-dateien/1_IMB/Working_Papers/2013/WP74_online.pdf) – (reference date: 30. 06. 2017).

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**THE USAGE OF INNOVATIVE TECHNOLOGIES IN THE DEVELOPMENT OF THE REGION  
INFRASTRUCTURE**



*The article reveals the questions of implementation and usage of innovative technologies into infrastructure of the region. The relevance of the article is determined by the fact that the creation of conditions for economic growth in the region is impossible without the development of innovative infrastructure based on usage of modern technologies. The results of previous studies in related field were systematized and summarized in the article. The article also reveals the priority directions of innovative infrastructure development in the Black Sea region; the tendencies in the field of improvement of innovative technologies application in development of regional infrastructure are considered, their implementation increases activity of innovative processes. Special attention is paid to the peculiarities in development of tourism and transport infrastructure, which are capable to increase volume of services on the Russian Black Sea coast.*

**Keywords:** innovative infrastructure, management, decision making management, innovative process, the Black Sea region.

### References

1. Crimea. Tavrida highway [Electronic resource] / RIA NOVOSTI. – Access: [http://crimea.ria.ru/dorogy\\_tavrida/20170512/1110357959.html](http://crimea.ria.ru/dorogy_tavrida/20170512/1110357959.html) – (reference date: 08. 06. 2017).
2. Kerch bridge [Electronic resource] / Russian News Agency. – Access: <http://новости.ru-an.info/новости/керченский-мост-опубликованы-свежие-кадры-хода-строительства/> – (reference date: 08. 06. 2017).
3. Morkovkin, D.E. Tools for long-term financing of infrastructure development of Russian economy / D.E. Morkovkin // Actual problems of Economics, Management, and Finance in modern conditions: Materials of the international scientific and practical conference 11 January 2016 / Innovative centre for development of education and science. – Vol. 3. – St. Petersburg, 2016. – pp. 32–35.
4. Morkovkin, D.E. Development of infrastructure as a factor of innovation and sustainable development of the real sector of Russian economy / D.E. Morkovkin // Modern problems of management of natural resources and development of socio-economic systems: Materials of XII international scientific conference / Moscow Witte University. – 2016. – pp. 592–602.
5. Rudenko, L.G. Theoretical and methodological approaches to the definition of infrastructure support of small business / L.G. Rudenko // Siberian financial school. – 2015. – Vol. 5 (112). – pp. 75–80.
6. Rudenko, L.G. Problematic aspects and forecast of innovative activity in Russia / L.G. Rudenko // Bulletin of the Moscow Witte University. Series 1: Economics and management. – 2013. – Vol. 4 (6). – pp. 26–32.
7. Improvement of mechanisms for increase of industrial enterprises innovative activity: collective monograph / Edited by M.Y. Veselovsky, I.V. Kirova. – Moscow: Scientific consultant, 2017. – 304 p.
8. Technological development in sectors of economy [Electronic resource] / Federal state statistics service of the Russian Federation. – Access: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/economydevelopment/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/economydevelopment/#) – (reference date: 12. 05. 2017).
9. Factsheet Sochi 2014 Facts&Figures [Electronic resource] / The International Olympic Committee. – Access: [http://https://stillmed.olympic.org/Documents/Games\\_Sochi\\_2014/Sochi\\_2014\\_Facts\\_and\\_Figures.pdf](http://https://stillmed.olympic.org/Documents/Games_Sochi_2014/Sochi_2014_Facts_and_Figures.pdf) – (reference date: 09. 06. 2017).
10. Nikonorova, A.V. Creation of clusters of small enterprises of the region / N.V. Kiseleva, M.V. Panichkina, E.N. Klochko, A.V. Nikonorova, S.V. Kireev // International Journal of Economics and Financial Issues. – 2016. – Vol. 6. – Vol. S2. – pp. 294–297.

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**IMPORT SUBSTITUTION ECONOMY: IMPACT ASSESSMENT OF STRUCTURE OF FOREIGN TRADE COMMODITY FLOWS ON DEVELOPMENT OF ECONOMIC POTENTIAL AND IMPORT SUBSTITUTION IN THE RUSSIAN FEDERATION**

*Within the internal round table, taken place 11/24/2016 on the basis of Institute of economy of RAS, domestic scientists discussed the issues connected with the economic situation in the country and, first of all, what processes have been started as a result of imposition of economic sanctions against Russia. The purpose of the held discussion consists in exchange of the points of view for a problem of import substitution and food security in the context of restrictions of the foreign trade operations. It is possible to refer to results of the held event: consequences of imprudent policy of sanctions both for domestic manufacturers and consumers, and for the European contractors are established; the concept that import substitution is only one of links in the general chain of gaining the world market is put forward and proved; the key role of innovations in the field of achievement of the goal of gaining the world market is shown by domestic goods. Materials of a round table will be useful as for researchers in the field of import substitution and food security, and the employee of state bodies.*

**Keywords:** import substitution, foreign trade, food security, commodity flows, economic potential, sanctions, counter-sanctions.

**References**

1. Evtyukhin, A.S. Role of strategy of import substitution for the oil industry in Russia and key barriers of its implementation / A.S. Evtyukhin, O.I. Dontsova // Basic and applied researches in the modern world. – 2016. – Vol. 15–2. – pp. 41–44.
2. Ermakova, Zh.A. The directions of resource-saving in the oil industry of the Orenburg region / Zh.A. Ermakova, N.K. Borisyuk // Bulletin of the Orenburg State University. – 2014. – Vol. 8 (169). – pp. 15–19.
3. Zeldner, A.G. Import substitution: sources of financing / A.G. Zeldner // Economic sciences. – 2015. – Vol. 122. – pp. 39–43.
4. Nevskaya, N.A. Features of industrial policy in Russia / N.A. Nevskaya // Scientific review. – 2015. – Vol. 13. – pp. 257–260.
5. Novitsky, N.A. Import substitution as basis of technological breakthrough to innovative reproduction / N.A. Novitsky // Economy and Entrepreneurship. – 2014. – Vol. 10 (51). – pp. 86–90.
6. Osipov, V.S. Political economy of sanctions (new agrarian policy) / V.S. Osipov // International scientific research. – 2014. – Vol. 3–4 (20–21). – pp. 6–8.
7. Pankova, S.V. Statistical analysis of dynamics of production of the main agricultural products of Russia and USA for the period 1940 – 2012 / S.V. Pankova, A.P. Tsypin // Intelligence. Innovations. Investments. – 2016. – Vol. 4. – pp. 39–44.
8. Popov, V.V. Econometric modeling of influence of the foreign trade commodity flows on development of economic potential of subjects of the Russian Federation / V.V. Popov, A.P. Tsypin // Economy and entrepreneurship. – 2015. – Vol. 12–3 (65–3). – pp. 391–394.
9. Skryl, T.V. Sustainable economic development: aspects of industrial policy / T.V. Skryl, V.S. Osipov // Economy and entrepreneurship. – 2016. – Vol. 1–2 (66–2). – pp. 719–726.

10. Tsypin, A.P. Influence of a condition of the industry on food security of region / A.P. Tsypin // Azimuth of scientific research: economy and management. – 2016. – Vol. 5. – Vol. 3 (16). – pp. 209–211.

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**POSSIBILITIES OF APPLICATION OF THE FINANCIAL BENCHMARKING IN THE SPHERE OF THE HIGHER EDUCATION**

*Relevance of the researched problem is caused by progressive changes in the sphere of the higher education in Russia, and also by increase in the level of the competition among higher education institutions. For achievement of sustainable and effective development of higher education institution in the modern conditions, and also for growth of its competitive advantages, the use of the modern technologies of control in activities of the educational organization becomes important aspect. The purpose of the article is to reason the importance of financial benchmarking applying as one of activities of the modern higher educational institutions. General scientific methods of research (comparing, generalization, systematization) were used. In the article the features and problems of financial benchmarking of higher education institution, and also the main questions of its carrying out are considered. The conclusion is drawn that in the modern conditions of development of the higher education system, the financial benchmarking becomes the necessary instrument of control which provides stable financial condition of higher education institution. Basic provisions and outputs of the article can be used in scientific activities when reviewing questions of the tendencies of financial benchmarking development in higher education institutions.*

**Keywords:** financial benchmarking, higher education institution, education market, financing.

**References**

1. Guseva, E.V. Benchmarking in higher education institution (on the example of the Krasnodar branch of Financial University under the Government of the Russian Federation) / E.V. Guseva, M.A. Foygel // Problems of achievement of economic efficiency and social balance: Imperatives, legal and economic mechanisms: Materials of scientific and practical conference 25–26 April 2014, Krasnodar / Federal public state educational institution of higher education «Krasnodar University of the Ministry of Internal Affairs of the Russian Federation». – Krasnodar, 2014. – pp. 57–61.
2. Danilova, T.V. Benchmarking as modern method of management of competitiveness in higher education institution / T.V. Danilova // Bulletin of the Chuvash University. – 2006. – Vol. 6. – pp. 354–358.
3. Klepikova, Yu.A. Financial effectiveness as a factor of ensuring financial stability of higher education institution / Yu.A. Klepnikova // Urgent problems of modern science in the 21st century: Materials X scientific and practical conference 30 April 2016, Makhachkala / Limited liability company «Aprobaciya». – Makhachkala, 2016. – pp. 76–80.
4. Masyuk, N.N. Benchmarking as an innovative way of increase in competitiveness of university in the international education market / N.N. Masyuk, P.V. Petrishchev // Modern problems of science and education. – 2012. – Vol. 6. – p. 447.
5. Rudko, T.A. Benchmarking as a method of realization of problems of a quality management system at national research university (in the Russian higher education institutions) / T.A. Rudko // Innovations in the public and municipal administration: experience of the solution of social and economic problems. – Administration of the Tomsk region. – 2014. – pp. 97–99.
6. Sidorova, E.E. Features of application of benchmarking at various stages of organization development / E.E. Sidorova // Business. Education. Right. Bulletin of the Volgograd Institute of Business. – 2011. – Vol. 2. – pp. 133–137.
7. Simonenko, E.S. Benchmarking as instrument of identification of competitive advantages of higher education

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institution / E.S. Simonenko // News of Southwest State University. – 2013. – Vol. 6-1 (51). – pp. 43–50.

8. Teplova, T.V. Secrets of a financial benchmarking / T.V. Teplova // Management today. – 2005. – Vol. 4. – pp. 48–57.

9. Financial security of activity of the educational organization of higher education: monograph / S.P. Sazonov, and others. – Volgograd: VSTU, 2014. – 144 p.

10. Kharlamova, E.E. Theory and methodology of effective management of dynamic development of the educational organization: monograph / E.E. Kharlamova. – Volgograd: VSTU, 2015. – 159 p.

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## **CONTENTS AND OBJECTS OF MANAGEMENT ACCOUNTING OF INNOVATIVE ACTIVITY OF THE INDUSTRIAL ENTERPRISE**

*In complex and uncertain business environment, the information, prepared in the management accounting system, is the basis for making qualitative managerial decisions by managers of industrial enterprises that carry out innovative activities. It is necessary to improve and develop managerial accounting of innovation activities.*

*The aim is the development of recommendations on the information formation and disclosure in management accounting on the innovation activity of industrial enterprise. General scientific methods (induction and deduction, systematization, classification) and analytical methods are applied in the work.*

*Objects of management accounting of innovation activity, namely the stages of the innovation process, as well as costs and results of each stage, are singled out. Intangible assets, innovative fixed assets and other results of innovative activity that are not considered as intangible assets and innovative fixed assets are defined as enlarged objects for calculating the cost of innovation. The classification of costs for innovation activity and the methodology for their reflection in the accounts of management accounting in the context of the stages of the innovation process of an industrial enterprise are proposed. Additional accounts of management accounting are proposed to generate information on planned, actual expenditures for innovative activity and deviation of actual costs from planned ones. The application of the proposed recommendations on the formation of management accounting of innovation activities in accordance with the stages of the innovation process of an industrial enterprise should contribute to the formation of qualitative accounting and analytical support for the management of innovation activities.*

**Keywords:** management accounting, innovation activity, accounting object, costs, classification of costs, stages of the innovation process.

### **References**

1. Degaltseva, Zh.V. Comparative characteristics of various methods of cost accounting and costing / Zh.V. Degaltseva // Polythematic network electronic scientific journal of the Kuban State Agrarian University. – 2014. – Vol. 104. – pp. 1010–1020.

2. Kirillov, A.V. Management of innovative activity at the present stage of development of Russia / A.V. Kirillov // Materials of the Afanasiev Readings. – 2014. – Vol. 1. – pp. 139–143.

3. Kolesnik, N.F. Peculiarities of cost accounting for research and development (technological) works / N.F. Kolesnik, A.Yu. Kostromina, A.A. Lyabusheva // Bulletin of the Tatishchev Volga University. – 2015. – Vol. 1 (33). – pp. 75–78.

4. Kulikova, N.N. Actual problems of management of science-intensive enterprises / N.N. Kulikova // Innovative Science. – 2016. – Vol. 11. – pp. 91–94.

5. Mazaeva, P.S. Essence of costs and their classification in an industrial enterprise / P.S. Mazaeva // Innovative science. – 2015. – Vol. 9. – pp. 175–177.

6. Pochinok, N.B. Methodical aspects of strategic management accounting of innovative activity of organizations in the sphere of educational services / N.B. Pochinok // Social Policy and Sociology. – 2015. – Vol. 4 (111). – pp. 13–21.

7. Sarantseva, E.G. Innovative activity as an object of management accounting / E.G. Sarantseva // International Accounting. – 2012. – Vol. 24. – pp. 23–29.

8. Sigidov, Yu.I. Classification of costs in calculating the cost of production in management accounting / Yu.I. Sigidov // Polythematic Network Electronic Scientific Journal of the Kuban State Agrarian University. – 2013. – Vol. 91. – pp. 1312–1322.

9. Khachaturova, A.E. The essence and stages of the innovation process in an industrial enterprise / A.E. Khachaturova // Actual questions of perspective scientific researches: Materials of international scientific and



practical conference 31 May 2016, Smolensk / LLC «Novalesno». – Smolensk, 2016. – pp. 190–192.

10. Khachaturova, A.E. Accounting and disclosure of information on the costs and results of innovation activities of industrial enterprises / A.E. Khachaturova // Models, systems, networks in the economy, technology, nature and society. – 2016. – Vol. 4 (20). – pp. 67–77.

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### ECOLOGICAL AESTHETICS AS A CORRELATE OF ANIMATE AND INANIMATE BEAUTY IN SEARCH OF A DECENT LIFE

*The article discusses two concepts of environmental aesthetics in the context of a relationship of animate and inanimate beauty. One of them is devoted to a critical analysis of the aesthetics of corporeality as living beauty. Another concept stems from the idea of the relation of man as natural space creatures interacting with nature and the concept of "inorganic body of civilization". The relevance of the article due to the dominance of the aesthetics of "body centrism" in the postmodern culture of the XXI century and arising in connection with it the problem of the aestheticization of ethics. The purpose of this article is to sum up the problem of worthy human lifestyle as a converter of the environment, harmoniously combining animate and inanimate beauty in the light of the environmental aesthetics and in this regard, the illumination of the horizons of the so-called scientific art, defining the boundaries of the person in the creative activity results.*

**Keywords:** environmental aesthetics, the inorganic body of civilization, human dignity, science art.

#### References

1. Voropaeva, Yu.P. Ethics of human dignity in a globalized world: dis. ... Candidate of Philosophical Sciences: 09.00.05 / Voropaeva Yulia Petrovna. – Moscow, 2015. – 188 p.
2. The ancient Chinese philosophy // Collection of texts in two volumes. – Vol. 2. – Moscow: Thought, 1973. – 384 p.
3. Erokhin, S.V. The Third International Exhibition of Scientific Art «EECONICS / eCONSCIOUSNESS» // S.V. Erokhin // Historical, Philosophical, Political and Law Sciences, Culturology and Study of Art. Issues of Theory and Practice. – 2014. – Vol. 1. – Part 2. – pp. 56–62.
4. Kolomiets, G.G. Art as a way to be at peace or to the question of the communicative function of art / G.G. Kolomiets // Bulletin of the Orenburg State University. – 2007. – Vol. 7. – pp. 158–162.
5. Kolomiets, G.G. To the question about new trends in pragmatic aesthetics / G.G. Kolomiets // Bulletin of the Orenburg State University. – 2014. – Vol. 7. – pp. 119–123.
6. Kolomiets, G.G. Some issues of philosophical thought about music in Ancient China: status and purpose in the anthropo-social dimension / G.G. Kolomiets // Bulletin of the Orenburg State University. – 2009. – Vol. 7. – pp. 181–187.
7. Kolomiets, G.G. About tendencies in the convergence of scientific and artistic ways of knowing / G.G. Kolomiets // Scientific art: Materials I International scientific and practical conference 04–05 April 2012, Moscow / Moscow State University. – Moscow: MIEE, 2012. – pp. 60–64.
8. Mankovsky, N.B. Self-reflection of non-classical aesthetics / N.B. Mankovsky // Aesthetics at the turn of cultural traditions. – Moscow: IPH RAS, 2002. – pp. 5–25.
9. Oganov, A.A. Aesthetic ideals / A.A. Oganov / Section V, Chapter 4 // Philosophy: University course // Under the general editorship of Professor S.A. Lebedev. – Moscow: FAIR-PRESS, 2003. – pp. 454–478.
10. Parusimova, Y.V. To the issue of «scientific art» in the modern aesthetic knowledge / Y.V. Parusimova // Bulletin of the Orenburg State University. – 2015. – Vol. 11. – pp. 244–248.
11. Pozerski, V.V. Environmental aesthetics: concepts and positions [Electronic resource] / V.V. Pozerski. – Access: <http://www.ipi1.ru/images/PDF/2015/43/ekologicheskaya-estetika.pdf/> – (reference date 22. 02. 2017).
12. Savchuk, V. New aesthetics – the aesthetics of the body / V. Savchuk, introductory article / R. Shusterman. Pragmatic aesthetics: living beauty, rethinking art: monograph / R. Shusterman. – Moscow: «Canon+», RPODP «Rehabilitation», 2012. – pp. 5–15.
13. Stepin, V.S. Civilization and culture / V.S. Stepin. – St. Petersburg: SPbUHSS, 2011. – pp. 19–27.

---

14. Wilson, Stephen Art and science as cultural acts / BioMediale: Contemporary society and genomic culture [Electronic resource] // S. Wilson. – Access: <http://www.biomediale.ncca-kaliningrad.ru/?blang=ru&author=wilson/> – (reference date: 10. 04. 2017).

15. Shusterman, R. Pragmatic aesthetics: living beauty, rethinking art: monograph / R. Shusterman. – Moscow: «Canon+», RPODP «Rehabilitation», 2012. – 408 p.

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**THREE PROJECTS OF METHODOLOGY OF PHILOSOPHY HISTORY IN FRENCH THOUGHT  
OF THE XX CENTURY**

*The purpose of this article is to designate the problem field of modern methodology of history of philosophy and to define the directions of new approaches to the uniform system of historic-philosophical knowledge. Authors offer comparison of three projects of history of philosophy, which have appeared in France in the 20th century: concept of «moments» and break-up of F. Worms, dianoetic of M. Gueroult and concept of history of philosophy of E. Bréhier. Conclusions, to which researchers come in the comparative analysis, reflect the modern aspiration of philosophers to find such methodology of creation of history of philosophy where the philosophy will be shown as philosophizing, but not the list of schools, schemes and historic facts. This article has special relevance in the theoretic-methodological consideration of all historic-philosophical process, and in projects of practical techniques of teaching history of philosophy.*

**Keywords:** history, philosophy, methodology of the history of philosophy, French philosophy, historic-philosophical process.

**References**

1. Badiou, A. Manifesto of philosophy / A. Badiou. – SPb.: Machina, 2003. – 184 p.
2. Blauberger, I.I. E. Bréhier and M. Gueroult: two approaches to the history of philosophy / I.I. Blauberger // History of philosophy. – 2008. – Vol. 13. – pp. 69–88.
3. Bréhier, E. As I understand philosophy / E. Bréhier // Philosophy of Plotinus. – SPb.: «Vladimir Dal», 2012. – 392 p.
4. Worms, F. How A. Bergson introduces the problem of life in the French philosophy of the XX century / F. Worms // Logos. – 2009. – Vol. 3 (71). – pp. 45–59.
5. Deleuze, G. Difference and repetition. / G. Deleuze. – SPb.: «Petropolis», 1998. – 384 p.
6. Podoroga, Yu.V. «Problem» versus «method», or How to write the history of modern philosophy / Yu.V. Podoroga // Philosophical journal. – 2010. – Vol. 1 (4). – pp. 148–157.
7. Rorty, R. The Historiography of Philosophy: Four Genres [Electronic resource] / R. Rorty. – Access: [http://portalus.ru/modules/philosophy/rus\\_readme.php?subaction=showfull&id=1163006416&archive=1254313661&start\\_from=&ucat=&](http://portalus.ru/modules/philosophy/rus_readme.php?subaction=showfull&id=1163006416&archive=1254313661&start_from=&ucat=&) – (reference date: 28. 02. 2017).
8. Heidegger, M. What is the history of philosophy? / M. Heidegger // Provision on justification. – SPb.: «Aleteyya», 2000. – 290 p.
9. Boulad-Ayoub, J. Martial Gueroult, Histoire de l'histoire de la philosophie / J. Boulad-Ayoub // Analyse et raisons. – Paris: Aubier. – Livre I. – Vol. II. – 1988. – pp. 329–673.
10. Bréhier, E. Histoire de la philosophie. I. Antiquité et Moyen Age / E. Bréhier. – Paris: Librairie Félix Alcan, 1928. – 788 p.
11. Brunner, F. Hommage à Martial Gueroult / F. Brunner. // Revue de théologie et de philosophie. – 1977. – Vol. 27. – pp. 177–185.
12. Gress, T. Frédéric Worms: La philosophie en France au XXème siècle. Moments. [Electronic resource] / Gress, T. – Access: <http://www.actu-philosophia.com/spip.php?article138> – (reference date: 01. 03. 2017).

13. Worms, F. La philosophie en France au XXème siècle. Moments. / F. Worms. – Paris: Gallimard, 2009. – 643 p.

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#### PHILOSOPHY OF BIO-INTELLECTSPHERE: PROBLEM OF THE ESSENTIAL CONSTITUTION

*In the conditions of environmental problems aggravation, particular importance has the development of strategy of coupled evolution of man (society) and nature. It actualizes the task of identifying the conceptual prerequisites for the development of this strategy, in other words – facts, principles, postulates and laws, the content of which reflects the unity and functional relationship of man and nature as components of the biosphere, geological activity of which determines the global settings of the geographical cover.*

*In this article, the author describes the theoretical backgrounds of philosophy of bio-intellectsphere – concept, the development of which, in the future, will allow to reveal essential aspects of the strategy on rational socio-natural development, to determine the direction of the implementation of this strategy.*

*The author understands bio-intellectsphere as the scope of rational organization of life – the stage of development of the biosphere in which human activities will be aimed at preserving and maintaining the conditions necessary for optimal life – geological factor, which is the presupposition of humanity existence [7].*

*The purpose of this paper is to identify conceptual prerequisites necessary for the essential constitution of philosophy of bio-intellectsphere.*

*This goal involves the following tasks:*

- consideration of the biogeochemical principles of V.I. Vernadsky;
- characteristics of environmental laws of B. Commoner;
- analysis of the anthropic cosmological principle and the Cosmological principle of Great Supplement.

**Keywords:** bio-intellectsphere, biosphere, Universe, geographical cover, living matter, evolution.

#### References

1. Vernadsky, V.I. Biosphere and noosphere / V.I. Vernadsky. – Moscow: Iris-press, 2007. – 576 p.
2. The laws of Commoner environmentalists [Electronic resource] – Access: [http://www.studbooks.net/37942/ekologiya/zakony\\_ekologii\\_kommonera](http://www.studbooks.net/37942/ekologiya/zakony_ekologii_kommonera) – (Reference date: 28. 02. 2017).
3. Kaznacheev, V.P. Cosmoplanetary phenomenon of man. Problems of complex study / V.P. Kaznacheev, E.A. Spirin. – Novosibirsk: Science, Sib. branch, 1991. – 304 p.
4. Kaznacheev, V.P. Essays on the nature of living matter and intelligence on planet Earth: problems of Cosmoplanetary ecology / V.P. Kaznacheev, A.V. Trofimov. – Novosibirsk, 2004. – 312 p.
5. The project Biosphere-2 – is there a life in an artificial habitat [Electronic resource] – Access: <http://www.poznavatelno.net> – (reference date: 01. 03. 2017).
6. Sabirov A.G. Man in modern philosophical anthropology: monograph / A.G. Sabirov. – Kazan: State financed entity «Republican center of education quality monitoring» (publishing department), 2013. – 167 p.
7. Smirnov, S.V. Bio-intellectospheric approach to the development of nature and society: essence, specifics of formation / S.V. Smirnov // Historical, philosophical, political and law sciences, culturology and study of art. Issues of theory and practice. – Tambov: Gramota, 2015. – Vol. 2 (52): in 2 parts. Part 1. – pp. 179–182.
8. Subetto, A.I. Noospherism. Volume one. Introduction to noospherism / A.I. Subetto. – SPb: KSU named after N.A. Nekrasov, KSU named after Cyril and Methodius, 2001. – 537 p.
9. Ujko, Y.A. Modern state of biosphere and environmental policy [Electronic resource] / Y.A. Ujko, Y.F. Kolesnik. – Access: <http://www.ours-nature.ru/lib/b/book/4140640957/> – (reference date: 28. 02. 2017).

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#### SYSTEM OF PROTECTION OF PERSONAL DATA IN THE HIGHER EDUCATIONAL INSTITUTION

*The urgency of the problem of ensuring the information security of personal data, processed in a higher educational institution, is justified by the high rates of the process of education informatization; the concentration of a large amount*

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*of personal data in the university information system; the diversity of internal and external information links; the high demand for network access to data. The purpose of the article is to analyze the information structure of the university, to identify the main problems and the most vulnerable areas from the point of view of information security, to form stages assessing scheme of the security of PD. As a basic approach to solving the problem of ensuring the information security of the personal data of the university, a comprehensive approach is proposed. It includes an analysis of the regulatory framework for the requirements of the safety of PD and an analysis of the current security threats within the functioning of the university's information system. The information structure of the university is constructed, taking into account the information flows of personal data functioning in the presented subsystems. The scheme of security assessment stages of personal data in high school is developed. Its consecutive performance will allow to reveal the basic channels of information leakage, actual threats of safety and to construct effective system of protection PD. Protection technologies are proposed taking into account the specifics of PD functioning in the university, the main of which are the measures for access control and the organization of secure data transmission channels.*

*The developed information structure of the university will allow to concentrate the main measures to protect PD on the most vulnerable subsystems of the information structure. The proposed scheme of the security assessing stages of personal data can be used to conduct internal audit of the security system of the PD in the university. The implementation of the proposed protection technologies, taking into account the specifics of PD functioning in the university, will increase the overall level of information security.*

**Keywords:** *personal data, information structure of the university, threat model, information security.*

### **References**

1. Aleksashina, M.N. Protection of personal data as a condition of providing personal security / M.N. Aleksashina // Law and safety. – 2014. – Vol. 1. – pp. 68–73.
2. Astakhova, L.V. Peculiarities of the personal data security in the educational institution / L.V. Astakhova, A.O. Zavatsky // Bulletin of the UrFR. Security in the information sphere. – 2013. – Vol. 3 (9). – pp. 4–10.
3. Burkova, E.V. The task of assessing the security of information systems of personal data / E.V. Burkova // Bulletin of the Chuvash University. – 2016. – Vol. 1. – pp. 112–118.
4. Gorbachev, D.V. General problems of information security of an educational institution / D.V. Gorbachev, A.S. Vinogradova // Intelligence. Innovation. Investments. – 2014. – Vol. 1. – pp. 160–164.
5. Isaev, A.S. Automation of the process of forming a model of threats to the security of personal data when processing them in personal data information systems on the basis of the theory of building expert systems / A.S. Isaev // Scientific and Technical Bulletin of the Volga Region. – 2014. – Vol. 2. – pp. 133–135.
6. Kurilo, A.P. Modeling as a system-forming factor in assessing the security of information processes in computer systems / A.P. Kurilo, V.N. Finko, V.S. Zarubin, A.Ya. Fomin // Security of information technology. – 2010. – Vol. 2. – pp. 19–21.
7. Masalova, K.V. Protection of information resources and processes in higher educational institutions / K.V. Masalova, E.V. Sharlayev // Polzunov Bulletin. – 2014. – Vol. 2. – pp. 235–237.
8. Mironova, V.G. Analysis of stages preproject survey information system of personal data / V.G. Mironova, A. A. Shelupanov // Bulletin of the Siberian State Aerospace University named after Academician M.F. Reshetnev. – 2011. – Vol. 2 (35). – pp. 45–48.
9. Nagorny, S.I. On the contradictions in normative and legal documents regulating the protection of personal data / S.I. Nagorny, V.V. Dontsov, A.V. Mikhailov // Information protection. Inside. – 2010. – Vol. 2 (32). – pp. 46–52.
10. Nazarov, I.G. Features of the organization of ensuring the safety of personal data when processing them in information systems of personal data / I.G. Nazarov, Yu.K. Yazov, E.S. Ostroukhova // Information and Security. – 2009. – T. 12. – Vol. 1. – pp. 71–76.
11. Nesterov, S.A. Analysis and management of risks in information systems based on Microsoft operating systems / S.A. Nesterov. – St. Petersburg: Polytechnic University, 2009. – 136 p.
12. Ozhiganova, M.V. Legal protection of personal data protection in the educational organization / M.V. Ozhiganova // Law and Education. – 2015. – Vol. 8. – pp. 18–20.
13. Treschev I.A. The confidential information protection system for higher educational institutions «Electronic University» / I.A. Treschev, J.Y. Grigoriev, A. A. Vorobev // Science. – 2013. – Vol. 1 (14). – pp. 1–8.
14. Shakirova, R.A. Development of an algorithm for the process of designing a private model of threats to the security of personal data / R.A. Shakirova, D.A. Zakoldaev // New view. International scientific bulletin. – 2015. – Vol. 8. – pp. 165–168.

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**AUTOMATION OF ACCOUNTING AND ANALYSIS OF THE CAPITAL CONSTRUCTION OBJECTS CONNECTIONS TO THE GAS SUPPLY SYSTEM**

*The purpose of this article is to cover issues related to the development of information decision support system in the enterprise, working with gasification of industrial and residential buildings. The urgency of development due to the fact that in modern conditions the improvement of enterprise management mechanism becomes a decisive factor of its successful development. The task of improving the quality of management solutions is offered to solve with the help of information-analytical system having two circuits. The first circuit can automate operational accounting, and save up the information for the second circuit - intellectual. Intellectual circuit consists of expert systems and decision support systems (DSS).*

*The expert system determines the customer category, which determines the cost of connecting to the gas pipeline. DSS determines the most promising territorial zone for the gasification.*

*Scientific novelty consists in the fact that the authors propose the concept of creation a base of rules for certain categories of citizens, and the additive convolution method for solving the problem of multi-criteria optimization is adapted.*

**Keywords:** *the gas supply system, connection to the gas supply system, planning of supply networks, rule base, convolution of criteria.*

**References**

1. The accumulation of knowledge in the information space of enterprises of the region: monograph / V.P. Kovalevsky [and others]. – Moscow: Finance and statistics, 2011. – 351 p.
2. Buresh, O.V. Associative analysis as an instrument of accumulation of knowledge in the corporate memory of the organization / O.V. Buresh, M.A. Zhuk // Economic analysis: theory and practice. – 2011. – Vol. 2. – pp. 19–25.
3. Grigoriev, L.I. Actual problems of automation at the enterprises of the oil and gas industry / L.I. Grigoriev, S.A. Vlasov // Automation in industry. – 2009. – Vol. 6. – pp. 16–20.
4. Zhuk, M.A. Mechanisms of accumulation of knowledge for assessing the effectiveness of business processes [Electronic resource] / M.A. Zhuk. – Access: <http://uecs.ru/uecs-34-342011/item/724-2011-10-28-06-43-23> – (reference date: 06. 06. 2016).
5. Zhuk, M.A. Mathematical modeling of strategy of socio-economic development in the region / M.A. Zhuk // Problems of Economics and Law. – 2011. – Vol. 35. – pp. 197–202.
6. Kryukov, O. V. Intelligent support of managerial decisions in the gas industry / O.V. Kryukov, R.V. Milov, B.A. Suslov // Automation in industry. – 2009. – Vol. 6. – pp. 16–20.
7. Poryadina, L.V. Method of generalized additive convolution in decision-making problems: dis. ... Candidate of Technical Sciences: 05.13.10 / Poryadina Vera Leonidovna. – Voronezh, 2008. – 151 p.
8. Trahtengerts, E.A. Computer systems of decision support / E.A. Trahtengerts // Problems of management. – 2003. – Vol. 1. – pp. 13–27.
9. Uzdeneva, T.A. System of decision support that is integrated with «IC: Enterprise» / T.A. Uzdeneva // the Young scientist. – 2011. – Vol. 3. – Vol. 1. – pp. 105–107.
10. Fertikova, Y.V. Tendencies of development of the gas industry in modern Russia / Y.V. Fertikova // Actual problems of economy and management: Materials of International scientific conference 08-09 April 2011, Moscow. – Vol. 1. – Moscow: RIOR, 2011. – pp. 87–89.

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**SYSTEM OF CONTROL AND AUTOMATIC REGULATION OF AIR POLLUTION IN PRODUCTION FACILITIES**

*Compliance with hygiene standards in production areas is important and continuously relevant task, especially in cases when the production process is fraught with possible admission to the air pollutants, hazardous to workers'*

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health. Constant monitoring of the state of the air environment, including service centers, is the most effective in automatic mode, allowing detecting dangerous levels of pollution, and reacting. In this regard, the aim of this paper is to develop universal framework for control systems and automatic control of the air environment state that can be simply adapted to the individual characteristics of the particular production. Identification of the structure were produced by the methods of system analysis, taking into account functional requirements and economic efficiency; the construction of transfer functions of actuating devices, made by methods of mathematical modeling, is typical for control theory. As a result, a list of sensors, recommended to use, assessing air pollution on the most common substances, was made. The transfer function for the control of actuators based on electric motors was shown. The efficiency of information exchange in the system of control and regulation in accordance with the standard ISA100.11a, and the feasibility of control of actuators using HART communication protocol are proved.

**Keywords:** automatic control, sensor networks, monitoring of air pollution, actuators based on electric motors.

### References

1. The dust control as part of environmental monitoring in the road sector / A.V. Kochetkov, A.V. Chvanov, S.P. Arzhanuhina, N.E. Kokodeeva // Ecological systems and devices. – 2009. – Vol. 2. – pp. 46–49.
2. Lokteva, M.V. Problems of information monitoring systems modeling and control of complex objects / M.V. Lokteva, A.N. Artemov // Bulletin of the Voronezh State Technical University. – 2014. – Vol. 2. – pp. 24–27.
3. Maslov, I.P. The control settings of the automatic control system of fan for local ventilation in coalmines / I.P. Maslov, I.Ju. Semykina // Electrotechnical complexes and control systems. – 2015. – Vol. 1. – pp. 29–34.
4. Nikolaev, A.B. Modeling of automatic control system for thermoelectric object / A.B. Nikolaev, Z. Ni // Bulletin of the Moscow State automobile and road Technical University (MADI). – 2014. – Vol. 3. – pp. 78–82.
5. Nikolaev, A.B. The theoretical foundations of solving information challenges / A.B. Nikolaev, V.N. Bryl', S.A. Kuznecov // Bulletin of the Moscow State automobile and road Technical University (MADI). – 2010. – Vol. 4. – pp. 74–78.
6. Strahova, N.A. Mathematical description of technological measures to dust work areas conveyor transport / N.A. Strahova, K.A. Belokur // News of Higher Educational Institutions. The North Caucasus region. Series: Technical Sciences. – 2007. – Vol. 2. – pp. 115–119.
7. Jakubovich, A.N. The reliability of the ATS, the described two-factor model / A.N. Jakubovich, I.A. Jakubovich // Bulletin of the Moscow State automobile and road Technical University (MADI). – 2016. – Vol. 1 (44). – pp. 7–14.
8. Jakubovich, A.N. Determination of the reliability of transportation systems and their elements methods of mathematical modeling / A.N. Jakubovich, I.A. Jakubovich // Truck. – 2016. – Vol. 7. – pp. 39–44.
9. Jakubovich, A.N. The assessment of security leading function of flow of failures / A.N. Jakubovich, I.A. Jakubovich // Bulletin of the Moscow State automobile and road Technical University (MADI). – 2011. – Vol. 1. – pp. 16–21.
10. Jakubovich, A.N. The application of digital virtual analyzer of sound signals for diagnosis of malfunctions of units of ATS / A.N. Jakubovich // Truck. – 2015. – Vol. 1. – pp. 22–23.
11. Jakubovich, A.N. An efficient algorithm for the numerical realization of random variables in problems of statistical modeling of reliability of technical systems / A.N. Jakubovich, I.A. Jakubovich // Intelligence. Innovation. Investments. – 2016. – Vol. 8. – pp. 84–89.

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## THE EXPERT'S EXAMINATION OF COLLISIONS OF HEAVY VEHICLES AT HIGH SPEEDS

*The urgency of the problem under investigation is caused by the fact that with the growth of motorization in the country, the level of accidents on the roads also increases, so a qualitative auto-technical examination that allows to restore the mechanisms of the road accident is now becoming necessary.*

*The purpose of the article is to analyze the available autoexpertises on the investigation of collisions of cars, to identify their main shortcomings, and, having considered the various options for solving conflict situations*

associated with the transport of dangerous goods, clarify the existing methodology, by taking into account additional factors.

Leading methods to the study of this problem is: comparison - at the stage of the analysis of the existing methods of conducting autoexperts, allowing to identify their shortcomings that can be eliminated, and the method of physical and mathematical modeling processes - at the stage of finalizing the methods through the input of additional factors.

As a result, an algorithm has been formed to determine the physical and technical quantities necessary for the analysis of road accidents, which makes it possible to identify and eliminate collisions of vehicles, which makes it possible to determine the impact pulse, impact, but also to estimate the energy loss due to deformation during impact contact. Knowing the values and directions of the shock pulse, it is possible to determine the region of the impact on the surface of the impacted vehicles.

The main provisions and conclusions of the article can be used in scientific and pedagogical activity when considering questions about conducting an auto-technical examination, as well as in practical activities when drawing up computer simulation algorithms for auto-technical expertise.

**Keywords:** expert's examination, road traffic accidents, the dynamics of road traffic accidents, the scheme of road traffic accidents, analysis of traffic, counter-oblique collision.

### References

1. Azemsha, S.A. Improvement of expert road traffic accident analysis using computer programs modeling / S.A. Azemsha, V.N. Galushko, S.V. Kirkovsky // Science and technology. – 2015. – Vol. 4. – pp. 152–159.
2. Berdyaev, V.D. Electronic technology in the study of theoretical mechanics / V.D. Bertyaev // Scientific and methodological articles on theoretical mechanics. – 2015. – Vol. 29. – pp. 33–38.
3. Status report on road safety in the world 2015 [Electronic resource]. World health organization. – Access: [//www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/GSRRS2015\\_Summary\\_RU](http://www.who.int/violence_injury_prevention/road_safety_status/2015/GSRRS2015_Summary_RU) – (reference date: 23.02.2017).
4. Komarov, Y.Y. Factors that increase the objectivity of technical expertise / Y.Y. Komarov, S.I. Tikhomirov // Transport of the Russian Federation. The magazine of science, practice, Economics. – 2016. – Vol. 201 – pp. 88–95.
5. Leybovitch, M.V. Expert study of the collision of the rider with a car / M.V. Leybovitch, A.S. Ryzhova // Organization and traffic safety: proceedings of the X scientific-practical. Conf. 16 March 2017 / TIU. – Tyumen, 2017. – pp. 300–306.
6. A review of accidents for the year 2016. [Electronic resource] / Management of traffic police UMVD of Russia. – Access: [//www.gibdd.ru/stat/2016/](http://www.gibdd.ru/stat/2016/) – (reference date: 03.01.2017).
7. Odintsov, L.G. Types of accidents / L.G. Odintsov, K.A. Nedbaylo, V.D. Legoshin // Technologies of civil security. – 2009. – Vol. 6. – pp. 77–82.
8. Ozorin, S.P. Operational approach to the evaluation of the expert activities for the road transport examinations / S.P. Ozorin, V.G. Maslennikov // Intelligence. Innovation. Investment. – 2016. – Vol. 3. – pp. 135–140.
9. Protasov, D.N. The influence of information on the investigation of road accidents committed because of unsatisfactory road conditions / D.N. Protasov // Bulletin of the Tula state University. Economic and legal Sciences. – 2008. – Vol. 2. – pp. 66–73.
10. Selyukov, D.D. the Account of the road conditions in the investigation of accidents / D.D. Selyukov, I.I. Leonovich // Science and technology. – 2010. – Vol. 2. – pp. 55–58.
11. Yannis, G. Modeling road accident injury under-reporting in Europe / G. Yannis, E. Papadimitriou, A. Chaziris, J. Broughton // European Transport Research Review. – 2015. – Vol. 6. – pp. 425–438.