

## ABSTRACTS

### THEORY AND METHODS OF PRODUCTION MANAGEMENT

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*Borisenko I.L.*

#### THE MODERN CONCEPT OF BOOSTING THE PRODUCTIVITY OF ENTREPRENEURSHIP

The article considers the interpretation of such concepts as “production”, “product”, “productivity” and “labour productivity”. It has been found that the Russian word “proizvoditelnost” is equivalent to the English word “productivity”. The paper specifies the system of processes used for production of goods, work performance and service delivery, i.e. the production system. It has been proposed to evaluate the performance of production-trading system by the efficiency of output, that is the ratio of the production system output to the one of the trading system. It is noted that the productivity of the process system (i.e. the industrial system) must ensure the coordinated interaction between the subsystems of working productivity, the efficiency of labour means and the productivity of labour objects, as part of the integrated productivity system for production of goods, work performance and service delivery (i.e. the process system or the production system). The criteria have been outlined for assessing the efficiency (productivity), the labour productivity, boosting the efficiency (productivity) and boosting the labour productivity. The completed analysis has confirmed that, from the viewpoint of importance, the concept of “efficiency” (“productivity”) is the broad one, while the concept of “labour productivity” is more specific. The labour productivity is the constituent part of the overall productivity of the company (enterprise). It appears disputable that labour productivity must be measured as the GDP per worker or the annual output per employee, regardless of the ratio of expenses on salaries in the cost of products, works or services. The modern concept of boosting the productivity of entrepreneurship (business) has been presented and theoretically proved

**Key words:** efficiency, productivity, labour productivity, boosting the efficiency, boosting the labour productivity, boosting the productivity of entrepreneurship

*Mizyun V.A.*

#### THE REGULATORY MANAGEMENT OF SCIENCE-BASED PRODUCTION: PREREQUISITES, ESSENCE AND DISTINCTIVE FEATURES

The article presents the theoretical fundamentals and methodology of managing the integrated production and other organizational systems of new generation having an adaptive structure, which are oriented at providing the effective forms of management, mechanisms and tools of regulating the economic activities within a non-equilibrium ( postindustrial) economy. The objects of study are virtual on-line organizations, acting on the basis of electronic social systems. The subject-matter of the study are the processes related to industrial technical cooperation, and the informational interaction between the associated economic entities. The study of these processes results in working out the theoretical principles underlying the informal organization and intellectual support of high-tech production management. The results of studies represent the general theoretical and methodological base for specific research activities aimed at creating the institutional mechanisms and intelligent technologies of managing the adaptive business structures, meeting the competitive market requirements

**Key words:** virtual integrated organizations, regulatory management, system analysis, intellectual decision-making support; cognitive models of knowledge presentation; neuroinformatics

*Nazarenko M.A., Fetisova M.M.*

**THE DEVELOPMENT OF METHODS AND MEANS OF PLANNING INDUSTRIAL  
PROCESSES**

Due to the urgency of economic development in the Russian Federation, it appears necessary to develop a scientific approach to the methods of production organization. It is shown in this article that the development of the production infrastructure must be considered from the viewpoint of the integrated scientific approach. According to this approach, the production base, the organization of production and human resources are subsystems of the overall system of the company which also includes a set of its technological, administrative and control processes. It is demonstrated that production organization is appropriate to be considered as an open dynamic system, closely linked with the single industrial and organizational area of the region, which includes the establishments of higher education, providing the qualified personnel reserve. The planning of industrial processes must be carried out in such a way as to make it possible to calculate all control and administrative processes with the help of automatic information systems, i.e. numerically. This will enable us to complement the model with a prognostic function which is consistent with the scientific approach to the issue

**Key words:** planning of production, organization of production, methods of production organization, integrated approach

*Bernatskaya O.S., Lutovinov P.P.*

**CERTIFICATION AS A PROCESS OF ORGANIZING THE CAPACITY ASSESSMENT  
OF AN EMPLOYEE**

In the course of the study and analysis of existing scientific definitions, the question has been raised of whether certification must be understood as a process of organizing the labour capacity assessment of an employee during the managerial activities. The article contains the description of “input”, “process” and “output” of the system, and indicates the internal and external factors, affecting the process. It presents the well-reasoned explanation on using the process approach during the employee’s capacity assessment, which allows not only for evaluation of his competence and (or) labour potential, but also for effective interconnection of personnel management processes. The skills, constituting the labour potential, have been specified. The main stages of annual employees’ certification have been identified. The scheme has been outlined for complex dynamic assessment of qualification level and labour potential of an employee. There is a brief description of assessment systems applied by the Open Joint Stock Company “Severstal” and the Open Joint Stock Company “Magnitogorsk Iron and Steel Works”. It has been concluded that the development of these systems is necessary to provide an opportunity for conducting a complex dynamic assessment of qualification level and labour potential of workers, employed by metallurgical companies

**Key words:** certification of employees, the system of “input”, “process” and “output”, qualification, labour potential, complex dynamic assessment of qualification level and labour potential

*Pluzhnova E.N.*

#### **ON THE ISSUE OF ORGANIZATIONAL CULTURE MODELLING**

On the basis of specifying the concept of organizational culture, the article defines three levels of organizational culture factors and identifies the causal relationship between them. The first-level factors refer to the qualities of personnel (namely, involvement, adaptability and cohesion), considered as characteristics of organizational culture. The second-level factors include the system of motivation, the organizational structure, the communication system, the style of management, the training, the working conditions and the organizational and technical level of production. These are regarded as the ground for alignment of interests between the participants of joint activities. The third-level factors specify the grounds for such an alignment, and are subject to measurement during the organizational culture assessment. In the article, the complex methodology of evaluating the organizational culture has been proposed, including two methods of its measurement. The aggregative method assumes that organizational culture must be assessed through the measurement of its basic parameters to conduct the effective monitoring of their modification. In turn, the method of in-depth analysis is based on assessing the grounds for alignment of interests between the stakeholders of joint activities, which are represented by third-level factors, and this method is urgent for predicting the level of organizational culture development. The three-level multifactor model of organizational culture has been worked out which permits the probability assessment of changes in organizational culture. In order to measure the third-level factors, the article develops and presents a set of related statements. It sets forth the main results of the research, concerned with testing the comprehensive methodology for organizational culture assessment

**Key words:** organizational culture, factors of organizational culture, mathematical models, modelling

*Ryabchenko A.V.*

#### **THE MODEL OF COORDINATION BETWEEN SCIENTIFIC-TECHNICAL AND INDUSTRIAL-TECHNOLOGICAL STRUCTURAL LEVELS OF ROCKET AND SPACE CORPORATIONS IN THE DEVELOPMENT OF NEW AEROSPACE TECHNOLOGIES**

The rocket and space industry of Russia is facing the challenges related to construction of modern types of aerospace equipment for implementing the tasks of exploration and use of outer space. The implementation of the life cycle stages of new aerospace equipment is determined by organizational and economic mechanism of the functioning of integrated aerospace industry structures within the scientific-technical and production-technological levels of the structural framework of branch corporation, meeting the reliability requirements. The model of interaction is based on specification of scientific-technical and production-technological clusters in a structural framework of aerospace corporations, which also comprises the socioeconomic, administrative-economic, institutional and marketing clusters, constituting the framework of interaction. The economic effectiveness of integrated structures during the development of new equipment rests on ensuring the reasonable financial headroom of constituent enterprises when allocating the production tasks

**Key words:** structural organization, interaction, integrated structure, rocket and space industry, aerospace equipment

*Elrikh Y.V., Petrovsky E.A.*

**BUSINESS PROCESS RE-ENGINEERING AT ELECTRIC POWER COMPANIES FOR  
THE PURPOSE OF RISK MANAGEMENT SYSTEM INTEGRATION**

The article proposes the method of business process re-engineering for the purpose of risk management process integration. The electric power companies are driven to apply the approaches of risk management due to changes in the rules of power market functioning, the unstable economic situation, and the lack of qualified personnel within the industry. The analysis of power companies' activity shows the positive dependence of the performance upon implementation of integrated risk management systems. However, if business processes are not radically changed, the risk management system of the company, engaged in other processes, will be formal in nature. It will not only worsen the company performance, but can also encumber the process with excessive reporting. The most effective tool of introducing the risk management system in business processes is their re-engineering, since it is distinguished from other instruments by strong orientation toward a breakthrough or radical improvement. The re-engineering of business processes will permit to combine the scattered risk management processes into one interconnected system, aimed to achieve the strategic objectives, enhancing the reliability and safety of production

**Key words:** electric power industry, risk, the system of business processes, the re-engineering of business processes, the integrated risk management, optimization of processes

*Nefediev D.S., Suloeva S.B.*

**THE METHODS OF RISK DETECTION AT AN INDUSTRIAL ENTERPRISE**

The article reveals the problems of industrial enterprises and the barriers to growth, which is particularly important for success of the national economy in the conditions of global competition. It has been found that risk detection is a priority for managing the development of industrial enterprises. The paper highlights the indisputable methods of risk identification and analysis at industrial enterprises, and defines a few additional ones. The modified classification of risk detection methods has been presented.

An approach has been developed for selecting the appropriate method of risk detection depending on available time, resources and the complexity of the method. The average index of cost, related to using the risk assessment method, has been calculated. The most sophisticated methods have been identified, oriented at assessment of industrial safety and production risks.

The matching of detection methods with risks has been carried out. The scheme has been developed for matching risks with methods of their detection. It has been proposed to perform the correlation between the major groups of risks and the methods of their detection. The most preferred ways have been proposed, aimed at risk assessment on the basis of express analysis, which permits to achieve high efficiency of industrial risk management in the situation of foreign political tension.

**Key words:** enterprise, risk assessment, methodology, industry, labour costs

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## QUALITY AND COMPETITIVENESS OF PRODUCTS

*Kablashova I.V.*

### THE MOTIVATION OF PERSONNEL WITHIN THE CONCEPT OF UNIVERSAL QUALITY MANAGEMENT

The article deals with the relationship between the concepts of contemporary motivation theories and the principles of universal quality management. It also describes the nature of changes in motivational processes when applying the principles of team motivation of the personnel. The results of research have been presented, investigating the reasons for personnel resistance to applying the principle of universal responsibility for ensuring the process quality. It is noted that the implementation of this principle presupposes entrusting the employees with new responsibilities and functional duties, which requires revising the indicators of job quality and responsibility, along with amending the system of motivation, aimed to increase the personnel involvement in teamwork for ensuring and improving the quality. The problems under discussion concern with stimulating the employees for participation in cross-functional team activities, aimed at ensuring and improving the process quality. The goal of these motivational processes is to raise the interest of employees

**Key words:** quality, motivation, universal quality, motivational process, the theory of motivation, universal responsibility, quality assurance team, the management of personnel motivation

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## MANAGEMENT OF INNOVATIVE PROCESSES

*Oleynik S.P.*

### THE TOPICAL LOGISTICAL ASPECTS OF THE ACCESS OF HI-TECH PRODUCT INNOVATIONS TO EXTERNAL MARKETS

The change in marketing environment due to global economic processes, underlying the transition to buyer's market, justifies the orientation of market strategies toward the comprehensive strengthening of well-established business ties and enhanced cooperation, regarded as a source of growth in a strong competitive environment. While appreciating the market concept, referred to as "relationship marketing", it should be recognized that the expansion of sales markets is a permanent task of marketing, having no alternative in the long run. The current state of the internal market is specified by a lack of demand for domestic high-tech product innovations, which are no longer regarded as a tool of competition, and their "pushing" into foreign markets. The access of products to external markets involves the necessity for taking into account the number of logistic features of the process mentioned above. These features result from various aspects of the State regulatory policy in the field of foreign trade and, therefore, are mandatory by their nature. The origins of logistical limitations are the requirements, imposed by the Russian customs, currency and tax legislation. The awareness of these limitations and their meaningful perception permits to prevent and avoid the generated costs, shifting the process of product export to the mode, controlled by an exporter

**Key words:** product innovations, the lifecycle of the product, external market, customs procedure, value added tax, warranty repair

*Aniskin Y.P., Ilyuk V.V.*

### **THE METHODOLOGICAL PROBLEMS OF MANAGING THE INNOVATIVE ACTIVITY OF SCIENCE-BASED COMPANIES IN NON-EQUILIBRIUM CONDITIONS**

The article deals with the problems, arising from strategic innovative development of the national economy, which require a radical transformation of mechanisms for managing the innovative potential of science-based companies. The authors draw attention to specific economic conditions, in which the non-equilibrium state of the company, as observed within the period of implementing the innovation cycle, requires setting the permissible economic proportions in using the resource potentials by all development stakeholders. The similar type of proportions helps to maintain the least possible stability during the period of production modernization. This task requires the system for in-house control and audit of development processes that must be smoothly integrated into the mechanism of managing the innovative potential of development stakeholders. Another methodological problem of development planning is the presence of risks in framing the policies, concerned with consideration, reserves and methods of risk compensation when managing the innovation cycles. The authors propose to develop effective mechanisms and methodology for ensuring the solvency of companies and stakeholders in non-equilibrium economic conditions, during formation of business cycles in innovative development. Special attention is paid to creation and extension of the powers exercised by a systems integrator, which is a key governing body

**Key words:** non-equilibrium conditions, balance, innovative activity, methodology of management

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### **MODELING OF INDUSTRIAL SYSTEMS**

*Kushnir A.O.*

### **MODELLING THE OPPORTUNITIES FOR TERRITORIAL BUSINESS DEVELOPMENT IN REGIONS**

The development of retail business in Moscow and other large cities arising from the increasing number of sales and service locations, is gradually declining due to oversaturation in competitive networks and the difficulties in finding the premises to be rented for shops. Against this backdrop, there is no clear understanding of methods which are to be used for attracting the client traffic, expanding the sales funnel and increasing the margin of an existing business. The problem is supposed to be solved by using the author's waterfall (top-down) model, in which the development process is viewed as a flow passing through consecutive phases, namely, the analysis of requirements, the mathematical calculations, the comparison of results and data-based decision-making. The mechanism of the model functioning consists of two parallel workflows. The first workflow involves the analysis of the external market environment and the consolidation of the relevant parametric information on competing companies, while in the second one the mathematical calculations are performed to model the optimal territorial location of shops, taking account of predefined initial conditions and restrictions. Based on the evaluation results, the top management decides to merge with a rival business or establish their own business units within the area of interest, taking account of the geographical distribution of competing shops, the desired territorial presence in the specified area, valuation and financial profitability

**Key words:** business regionalization, territorial development, mathematical modelling, Big-Data, waterfall method of implementation

*Vsyakiy M.A.*

## **THE MECHANISM FOR DEVELOPING THE ORGANIZATIONAL STRUCTURES OF SCIENCE-BASED PRODUCTION**

The article deals with theoretical aspects of creating the mechanism for developing the organizational structures of science-based industries. Two subsystems have been identified within the mechanism being created, namely, the subsystem for developing the industrial structure of science-based production, and the subsystem for developing the management framework. The sequential steps for mechanism implementation have been reviewed, i.e. setting the development goals, identification of agents, studying the current state of the organizational structure of science-based production, the analysis of the resulting data, planning the industrial structural changes, establishing the economic relations between the industrial structural elements, and guiding the direction of management structure change in the context of industrial structural modifications. The paper describes the purpose of each step, schematically illustrating their sequence and relationship. Based on the present-day approaches to organizational structure creation and the peculiarities of science-based production, the principles have been described, underlying the creation of the mechanism for developing the organizational structures of science-based industries. These are flexibility, adaptability, innovation, long-term perspective, purposefulness, flat hierarchy and framework arrangement of organizational structures.

**Key words:** the mechanism for developing the organizational structures, science-based products, science-based production, organizational structure, industrial structure, management structure.