ABSTRACTS

THE THEORY AND METHODS OF PRODUCTION ORGANIZATION

Krivyakin K.S.

THE ORGANIZATIONAL DEVELOPMENT OF MANUFACTURING COMPLEX HIGH-TECH PRODUCTS

The article discusses the relevance and main directions in the organizational development of manufacturing high-tech products, and discloses the essence of patterns governing the organizational development of science-based production. The paper formulates the objective and the tasks of developing the organization of manufacturing complex high-tech products. The types of new equipment and technologies have been listed, assuming the interface engineering and product manufacturing as part of integrated working information environment, in which customer specifications are converted into equipment control programs and assembly instructions through computer modelling. In relation to implementing the re-equipment programs, the article presents the trends in the development of informational computer technologies at machine-construction plants, involved in manufacturing complex high-tech products. The options for technical re-equipment of manufacturing complex high-tech products have been proposed. The vectors of development of traditional and machine-construction technologies at science-based enterprises have been determined. The article gives examples of new breakthrough machine-construction technologies, demanded for manufacturing certain types of complex high-tech products

Key words: science-based production, complex science-based products, production technology, production organization

Kablashova I.V.

THE INNOVATIVE DEVELOPMENT IN PRODUCTION ORGANIZATION AND QUALITY MANAGEMENT, BASED ON PROCESSUAL APPROACH

The article deals with evolution of the processual approach, its application for innovative development of the integrated system of quality management, and the issues of ensuring the interaction between the processes in the industrial enterprise structure. It reflects the results of studying the provisions of the ISO standard (5th edition), aimed at achieving sustainable development of a company, based on implementing the policy of balancing the interests of all stakeholders, taking account of the conditions of rapidly changing external environment. It is noted that sustainable success, based on applying the processual approach to quality management, is achieved by means of constant innovation in the system of production organization, offering continuous personnel training and imparting the appropriate powers in the area of ensurance and continuous improvement of the quality of production processes

Key words: processual approach, integrated system of quality management, sustainable success of activity, interaction between processes, balance of interests, continuous improvement, personnel training in the quality system, balanced work of the personnel, management and organization of production processes

Popikov A.A.

THE MODEL OF PRODUCTION PROCESS ORGANIZATION AT SCIENCE-BASED ENTERPRISES

The article presents the model of production process organization for a science-based company. It reviews the content of each model block and proposes the mathematical tool, which permits to determine the method of production organization for solving a particular industrial task. The elaborated model considers the necessity for integrating the processes of research and development with those of product manufacture, and reflects the relationship and the impact of

science-based production features upon the content of each stage of production organizational model. The classification of production organization methods for a science-based enterprise has been presented, depending upon the type of production. Based on the theory of fuzzy sets, the procedure has been developed for selecting the most optimal method from many possible alternatives. The critical analysis of mathematical methods has been conducted to simulate the production processes at a science-based high-tech enterprise

Key words: production organization, production organization methods, the model of production process organization, science-based enterprise

THE PRACTICE OF PRODUCTION ORGANIZATION

Makarov N.N.

THE CREATION OF THE SERVICE CLUSTER IN VORONEZH REGION

The article discusses the urgency of creating the cluster for servicing the industrial enterprises of Voronezh Region. The problem of raising the regional competitiveness and economic progress directly depends upon the level of industrial development. In accordance with the adopted concept of industrial clusterization, five industrial clusters have been created and are now functioning. The creation of the service cluster on the territory of the region is necessitated by ensuring high-quality services for existing and new industrial enterprises, as well as by providing the service processes of the latest quality level for all product consumers of functional clusters. The organization of the service cluster activity will permit to establish closer links between science and production through close interaction on the basis of educational and scientific institutions of Voronezh region. To attain the high level of service processes, it has been proposed to provide training for specialists in this area, based on one of the leading universities of Voronezh. The proposed activities will help to increase the investment attractiveness of Voronezh region

Key words: service, service cluster, regional economy, integration

Nifontov A.I., Kushnerov Y.P., Chernikova O.P.

THE OPTIMIZATION OF PROCUREMENT ACTIVITIES OF COAL MINING COMPANIES

The current crisis conditions of coal mining enterprises force the management to amend the procurement policies, seek for new reliable suppliers that offer cheaper but high-quality ancillary materials, and study the issues, related to effectiveness of their use.

The article proposes a set of measures, aimed at optimizing the procurement activity of coal mining companies, which include the science-based regulation of working capital; setting the requirements of domestic consumers of material resources (i.e. industrial managers) for volume, weight, dimensions, delivery parameters and service; making decisions on whether to «manufacture» or «purchase», with account of the costs involved and the attainable quality level; developing the nomenclature of inventories planned for purchase; market analysis and selection of suppliers; contract execution; order placement, transportation, cargo handling, storage, stockpiling and preparation for transfer to production; the input quality control of incoming material resources; appraising the effectiveness of procurement activity, based on the results of control and audit of contract execution. The responsibility matrix has been elaborated for managers and workers of coal mining companies, as part of procurement activity

Key words: procurement activity, material resources, working capital, supply

Shendrikova O.O.

THE PROSPECTS IN APPLICATION OF BIOTECHNOLOGIES AT MACHINE-BUILDING ENTERPRISES

The article considers the prospects and the features of the introduction and use of biotechnology for the engineering complex. Given the concept of the term "biotechnology", stated the fact of the company's transition to the bioeconomy, as well as presents the concept of the effect. Listed directions of application and development of biotechnology in Russia, illustrates the amount of funding for the development of biotechnology in the directions. Promising directions of biotechnology development. Marked the main purpose of the use of biotechnology. Describes the challenges and constraints of biotechnology in Russia at the present stage, in which identified a priority in the development and application of biotechnology identified the areas of activity of engineering enterprises arising from the entry in the bioeconomy and the transition to biofuels. Considered aspects of transition of the Russian engineering enterprises for biofuels and biomaterials

Key words: biotechnology, efficiency, production, engineering

Shkarupeta E.V.

THE ESSENCE OF TECHNICAL DEVELOPMENT OF MACHINE-BUILDING COMPLEX ENTERPRISES

In the address of the RF President V.V. Putin to the Federal Assembly, it has been proposed to implement the national technological initiative, developing the industries of the new technological mode.

The prevalence of the sixth technological mode in machine construction must lead to significant changes in structure and value of production factors. This inevitably entails serious changes in the system of economic institutions and the mechanisms of business management.

Therefore, under these circumstances, it is essential to effectively use the reserves and levers for intensifying the technical development of machine-construction complex enterprises.

The article investigates the nature of technical development of machine-construction complex enterprises. Based on defining the essence of «development» and the concept of technological modes, the paper presents the clarified notion of technical development of machine-construction complex enterprises, relying on summary of viewpoints on such concepts as «technical development», «technical re-equipment» and «technical rearmament»

Key words: technical development, technical development control, machine construction

COMPANY MANAGEMENT

Azarova M.V.

THE PRINCIPLES OF EFFECTIVE STAFF MOTIVATION WITHIN THE SYSTEM OF ORGANIZATIONAL AND METHODOLOGICAL SUPPORT OF ECONOMIC COMPANY ACTIVITY

The tough competition and personnel shortage in the labour market compels the employers to increasingly address the problem of raising the personnel productivity.

The present article addresses the essential elements underlying the system of personnel motivation at companies. The analysis has been conducted to reveal the personnel needs and highlight the factors, impacting the motivation. It emphasizes the importance of the accessible and comprehensible system of remuneration for each employee. The article studies the influence of individual and group contribution on the achievement of company goals. Attention is drawn to the necessity for consideration of both tangible and intangible incentives of personnel motivation.

The final part of the article contains the proposals for creating the effective system of motivation at companies, highlighting the basic principles. It is possible to achieve sustainable success with the help of high-quality and effective management, by means of successful personnel

motivation, training, creating the work environment, and the appropriate implementation of innovations

Key words: personnel motivation, remuneration, the analysis of personnel needs, the principles of motivation system

Vsyakiy M.A., Turovets O.G.

THE CONDITIONS FOR DEVELOPING THE ORGANIZATIONAL STRUCTURES OF SCIENCE-BASED PRODUCTION

The prerequisite for creation and evolution of the effective organizational structure of science-based production is an objective analysis of the conditions of its development. It must be taken into account, that the use of approaches, applicable for traditional production, is fraught with bias in objective assessment of conditions of organizational structure evolution, owing to peculiarities of science-based production. The article proposes the approach to analysis of the conditions for developing the organizational structure of science-based production, which are viewed as a set of interrelated factors. The paper also presents the classification of these factors, based on subject of their origin, namely, the remote external environment, the proximal external environment, the internal environment of the integrated scientific-industrial complex, and the internal environment of a company viewed as a separate economic complex. The results of the study are the author's methodology of analyzing the conditions of organizational structure development, the model of analyzing the organizational structure and the system of evaluation indicators

Key words: science-based products, science-based production, organizational structure, industrial structure, management structure

Reshetov V.V.

ORGANIZATIONAL RISK MANAGEMENT OF COMPETITIVE PRODUCTION

The structural consideration of the model of launching competitive production in conditions of organizational risks is the result of analysis, forecasting, optimization and restricted choice of organizational priorities, positions, policies and structures of industrial processes to ensure the effective use of company resources and real development of competitive advantages. The orderliness of space is the strict aggregation of regularity, proportionality, compliance and interdependence of individual parts of the whole, aimed at keeping the focus of the system status and raising the preferred state, based on appropriate structural stability of competitive production.

As an integrated system of space elements, production organization determines the structural regularity. The organizational risk management of economic competitive production development must be envisaged in any structural type of production organization procedure, subject to the principles of adaptivity, sustainability and manageability. The probabilistic assumption of risks, along with assessment of their impact in system organization, ensures the competitive nature of production development. The disorganization of competitive production space can result in a loss of organizational effect and competitive advantage. Moreover, the organized space of competitive production can generate the functional links between heterogeneous interrelated organizational elements, which contribute to development of advantages through the emergence of new spatial properties of the whole

Key words: regulated economic theory, orderliness of space, probabilistic assessment, organizational position, organizational priorities, organizational risks, the concept of systems, quantitative measure, competitive advantages, organizational factors

Khrustaleva S.P., Polnomoshnova O.M.

THE STRATEGIC MECHANISM OF PLANNING OF PRIORITIES OF DEVELOPMENT OF SCIENCE INTENSIVE ENTERPRISES

At the present stage of formation and development of the national innovation system, science-based enterprises play a central role in processes of introducing the fundamental applied scientific knowledge into production, thus contributing to commercialization of science and the growth of product competitiveness in world markets. The main objective of strategic science-based enterprise management is to create the conditions for long-term sustainable development by orienting the scientific and industrial activity towards the creation of competitive, technologically sophisticated products, unique in science-based markets, by implementing the advanced production technologies. The growing efficiency of a science-based enterprise largely depends upon organization of scientific and research activities, and the availability of opportunities for subsequent introduction of results in the production process. The recommended mechanism of setting priorities in the development of a science-based enterprise involves a great number of actions, aimed at creating conditions for effective scientific transformation, and is based on gradual narrowing of the array of development vectors by methods of mathematical simulation

Key words: strategic management, development priorities, strategic choice, science-based enterprise, mathematical models of substantiating the strategic choice

PERSONNEL TRAINING IN THE AREA OF PRODUCTION ORGANIZATION

Bespalova V.V., Polyanskaya O.A.

THE PROSPECTS OF IMPLEMENTING DISTANCE EDUCATION IN THE MARKET OF PERSONNEL TRAINING SERVICES FOR PRODUCTION ORGANIZATION

Under current challenging economic conditions, the problem of providing innovative education of high quality is becoming a matter of particular concern. Apart from professional requirements, the labour market demands that job applicants, as well as specialists already working at companies or engaged in business, must have a high qualification degree and fundamental training.

In this regard, it became imperative to further implement the system of distance education, along with existing traditional forms. The article draws attention to the necessity for implementing this training system in the market of educational services, and studies the basic positive and negative aspects of such activity. Despite the existing experience of distance training system implementation by leading Russian and foreign educational institutions, this system, undoubtedly, requires modification and greater attention from both the RF Ministry of Education, and the educational institutions themselves

Key words: distance education, labour market, the market of educational services, traditional education, modern innovative technologies, quality of education, tutors

Logunova I.V.

THE COMPETENCE-ORIENTED MODEL OF MANAGERIAL TRAINING

As a new stage of the economic development of postindustrial society, knowledge economy is characterized by complexity and dynamics in the activity of companies and organizations, determined by increased competition, growing consumer needs and active use of informational technologies. Under new conditions, it is urgent for company managers to ensure, maintain and enhance the performance. The solution of this problem is possible by means of increased use of internal organizational potential based on human capital. The formation and evolution of the effective managerial team, based on competence approach, is precisely the way by which organizations can achieve strategic success. The competence approach, used in training of future managers, provides the basic competence development by implementing HR activities.

The competence-oriented model of training managers, proposed by the author, is underpinned by competencies regarded as the result of training process and the potential for creating strategic competitive advantage. The model has been elaborated using elements of the systematic approach, integrating universities and employers as key actors of the process of competence formation and evolution

Key words: competencies, competence, competence approach, competence-oriented model, modernization of education, manager's efficiency

QUALITY AND COMPETITIVENESS

Bulgakova E.Y.

THE APPROACH TO DISCLOSING THE ESSENCE OF ENTERPRISE MANAGEMENT QUALITY

The article addresses the problems of enterprises, related to implementation of one of the basic principles of the total quality management system, that is, the engagement of management, which predetermines the necessity for improving the processes of enterprise administration. In the context of this problem, the 5th edition of ISO standards particularly emphasizes the need for specifying the responsibility of all managers for the quality of the results of implementing administrative decisions, and the quality of enterprise management system functioning.

It is noted, that the quality of enterprise management is linked to solving such tasks as ensuring the quality of administrative decisions and management structure, and creating a new culture of relationships between managers and executives, based on establishing mutual responsibility for the results of functional activities. The paper considers the possibility of applying the processual approach for disclosing the essence of enterprise management quality assurance

Key words: engagement of management, management quality, quality of administrative decisions, quality of communications, quality of management processes, processual approach, systematic approach, quality of management system structure, components of management capacity

THE INNOVATIVE PROCESS MANAGEMENT

Guseva I.B., Dalekin P.I.

THE CLASSIFICATION OF METHODS FOR ANALYSIS AND ASSESSMENT OF RESEARCH AND DEVELOPMENT PROJECTS AT SCIENTIFIC PRODUCTION ENTERPRISES

In modern conditions of the country transferring to innovative way of development, the research and development projects are the central integrated core of science and production, and scientific production enterprises are a key generator of such projects. Due to high degree of risk and uncertainty, the R&D projects demand a highly formalized procedure of analysis and assessment.

The article reviews the basic criteria of research classification of methods for analysis and assessment of R&D projects at scientific production enterprises, and proposes the use of controlling service for handling the procedural matters. The controlling service is positioned as a key management coordinator, being a part of administrative decision-making by managers of scientific production enterprises during the procedure of R&D project analysis and assessment. The classification of the methods for R&D project analysis and assessment is based on the goal-oriented approach, using the principle of purpose and tools of controlling

Key words: methods, analysis, assessment, R&D project, scientific production enterprise

Polukeeva A.V.

THE PECULIARITIES OF ASSESSING THE INVESTMENT PROJECTS OF MACHINE-CONSTRUCTION COMPANIES IN THE PROVISION OF STATE SUPPORT

Most scholars agree that innovative activity has become the major driving force of economic and social development. Also, the global experience makes it clear that the potential for growth lies not only in exploitation of natural resources, but also in mastering new technologies and innovative modernization of the national economy. The present article discusses the concept of innovative activity, defines the essence of innovative activity management, and proves its role in the market position of an industrial enterprise. The features of innovative activity, as different from traditional forms of industrial economic activity, have been analyzed. The purpose and objectives of innovative activity management have been outlined. The article also considers the functions of innovative activity management

Key words: innovative activity, innovative activity management of an industrial enterprise, the peculiarities of the subject, purpose, objectives and functions of innovative activity management

PRODUCTION SYSTEM MODELLING

Lapshina M.L., Lapshin D.D., Meerson V.E.

THE USE OF DETERMINED CHARACTERISTICS IN DYNAMIC ANALYSIS OF A PRODUCTION PROCESS

The arbitrary system of indicators characterizing the state and dynamics of economic entity performance has been considered from the viewpoint of defining the system of relationships between its constituent parameters. Initially, the problem of direct determined factor analysis of the indicators of economic entity performance consists in specifying the appropriate function, clearly expressing indicator values through factor sets, and the analysis of how these factors impact the function value. The specification and analysis of identical relations between the elements of factor sets can be considered a separate task. The proposed approach has helped to solve a number of practical tasks, using the deterministic analysis for the description of machine-construction companies. The model of this system is being created in the form of fractional rational functions of variables, corresponding to initial values

Key words: characteristics, systems, algorithm, production volumes