

## **ABSTRACTS**

---

### **THEORY AND METHODS OF PRODUCTION MANAGEMENT**

*Krylatkov P.P.*

#### **SETTING THE GOAL OF CREATING THE OPTIMAL ORDER PORTFOLIO FOR A MACHINE-BUILDING COMPANY ON THE BASIS OF THE INTEGRITY CONCEPT**

The paper considers setting the goal of creating the optimal order portfolio, based on the concept of integrity of a machine-building company. It has been proposed to consider the concept of corporate integrity as a composite controlled parameter which forms the machine-building company-specific competence and technological uniqueness, production capacity and the level of customer value of products, determining the economic efficiency of the company operation. The study of the typology of subject-object relations has identified the operational, financial-industrial and speculative approaches of owners to company management, matching their priorities. Within the group of private owners, the following classes of them have been singled out: 1) industrial investor (efficient owner); 2) financial investor; 3) speculator; 4) inefficient owner. For all types of owners, the sets of priorities and the approaches to integrity management have been identified and presented, on the basis of which the owners take administrative decisions on adaptation and transformation of corporate integrity. From the standpoint of the operational approach to corporate integrity, taken by a machine-building company owner, the author's classification of tasks has been developed, aimed at creating the optimal order portfolio. The proposed classification serves as the basis for further formalized setting of the full range of optimization tasks aimed at formation of the order portfolio for a machine-building company and elaboration of algorithms for their solution

**Key words:** machine-building company, the concept of corporate integrity, management approaches of owners, order portfolio, risks, optimization

*Gunina I.A.*

#### **ON THE PROBLEM OF ASSESSMENT METHODS AND PRODUCTIVITY GROWTH FACTORS**

The article proves the importance of productivity enhancement, discusses the methodological approaches to productivity assessment (output) depending on the level of analysis (corporate, regional), and presents the groups of factors affecting the productivity enhancement in the region (or at the enterprise). Among the factors affecting the productivity enhancement, the following ones are identified: 1) capital factors; 2) socio-economic factors; 3) institutional factors. It is emphasized that the problem of achieving the productivity enhancement is linked with other problems, among which are staff development and real wage growth. The article also stresses the importance of institutional factors of labour productivity, which are determined by the level of labour management, production and administration. The sectoral factors described in the article include: 1) the growth of investments in industrial production; 2) the attraction of highly qualified specialists; 3) active and systematic renovation of fixed assets; 4) the reallocation of workforce; 5) the development of industrial policies aimed at promoting the sectors which are intended to become the engine of future economic growth; 6) the application of structural, financial, economic, human, informational and other innovations; 7) creating the infrastructure of business venture; 8) the concept of cluster approach to intensification of innovative development and improvement of industrial potential; 9) enhancing the efficiency of labour organization, etc. The factors, stated in the article, are ranked from the standpoint of significance and risk level

**Key words:** labour productivity, workforce, the productivity enhancement factors, reserves

*Artemenko V.B.*

### **ORGANIZATION OF SUSTAINABLE PRODUCTION IN RISK CONDITIONS IMPOSED BY RESOURCE CONSTRAINTS**

The article presents the integrated category of sustainable industrial organization, comprising such components as sustainability and production sustainability. The goal of sustainable industrial organization is manufacturing the existing product range and mastering new products under the negative impact of external factors. The characteristics of sustainable production have been presented, classified into six groups, namely: 1) principles; 2) methods and forms; 3) effective production cycle management; 4) the formation of the production structure; 5) standards; 6) higher level of automation. The author argues that the quality of sustainable production organization has to be assessed with the help of the specified set of characteristics. The innovation investment strategy is specified as the first method of ensuring the sustainability. The types of strategies have been described, namely, innovation inactivity, active strategy, passive strategy and the advancing innovative strategy. It was noted that the strategy of inactivity is negative for ensuring the sustainability of production organization, while the advancing innovative strategy is a recommended one, despite high levels of risk. The second method is the strategic analysis of production which serves to analyze the current industry situation. The author has developed six consecutive work stages constituting the analysis. The article highlights the need for considering the system of constraints in the assessment of information during the strategic production analysis. In conclusion, the author demonstrates the role of risk assessment in elaboration and implementation of the industrial strategy. It has been proposed to use the scenario approach in determining the trends of production development, taking account of the probabilistic nature of risks

**Key words:** production organization, sustainability, production sustainability, risk, strategic analysis, scenario approach

---

## **PRODUCTION MANAGEMENT PRACTICE**

*Stefan V.I., Stefan E.V.*

### **THE WAYS OF IMPROVING THE EFFICIENCY OF A SUBSIDIARY COMPANY AFFILIATED WITH THE INTEGRATED STRUCTURE**

The article discusses the approaches to gaining the competitive advantage from affiliation of a subsidiary company with the integrated structure. The approaches are based on the view that close links must be necessarily established between the subsidiary companies and the parent company. The author substantiates the claim that the key factor of growing efficiency of subsidiary company operation is the creation of conditions for gaining the economic effect from consolidating joint efforts in implementing the basic business processes of the corporation. The types of material and non-material relationships between the companies of the integrated structure have been identified. It is recommended to achieve synergy on the basis of creating the framework of possible types of relationships between the subsidiaries and with the parent company. The causes have been investigated which prevent the establishment of links in the corporate structure. The article proposes the ways for implementing the mechanism of establishing the links in the integrated structure, the dominant of which is elaboration of the horizontal corporate development strategy, taking account of operational characteristics of all consolidated companies. The aggregate analysis has been presented using the example of subsidiaries, incorporated into the integrated structure of the JSC «Concern «Sozvezdie»

**Key words:** subsidiary company, integrated structure, effect of synergy, framework of relationships, competitive advantage, corporation, parent company

**Boev A.G.**

### **THE ORGANIZATION OF EQUIPMENT MAINTENANCE AND REPAIR BASED ON SERVICE CLUSTER CREATION**

At present, import substitution is one of the priorities of economic development of the Russian Federation. The substitution of import goods and services with competitive domestic products has a critical role in machine construction, the strategically important and high-tech industry with high added value. In contemporary conditions, the industrial equipment often acts as one of the key assets of machine-building companies. In order to ensure the proper maintenance and repair of domestic industrial equipment, the author proposes to create a service cluster. The transfer of equipment maintenance and repair functions to the cluster will enable the enterprises to reduce the costs, use the experience and technologies of professional service companies and create the system for monitoring the quality of service works. The author proposes the model of the service cluster, able to mediate between the producers and the consumers of industrial equipment. The functional units of the service cluster have been proposed, which create its structure

**Key words:** maintenance, repair of equipment, outsourcing, cluster approach, cluster

---

## **COMPANY MANAGEMENT**

**Logunova I.V.**

### **THE METHODOLOGICAL APPROACH TO CREATING THE SYSTEM OF CORPORATE HUMAN RESOURCE DEVELOPMENT**

Human resource management is one of the key activities that enhance the effectiveness of personnel management by means of the most important resource of the company – that is, the human factor, which, in conditions of effective management, serves as a reserve for enhancement of company competitiveness. Taking into account the basic trends in overall organization management (and particularly, in personnel management), it is the development which becomes the essential function of corporate human resource management

The proposed approach to creating the system of corporate human resource development is based on the company's development strategy and the concept of overall management of corporate human resources. It is also assumed that two priorities of human resource development must be singled out, that is, training and career. The methodological approach to creating the system of corporate human resource development comprises such elements as actors and goals of the development process, the methods of development, organization and regulation of the development process, the evaluation of effectiveness and the organizational culture change while moving to a new phase of company operation

**Key words:** human resources, development, the system of human resource development, training, career, methods of development, the concept of human resource development

*Soldak Y.M.*

**ENHANCING THE EFFICIENCY OF MANUFACTURING HI-TECH PRODUCTS IN  
CONDITIONS OF RESOURCE CONSTRAINTS**

The efficiency of production is affected by numerous factors taking into account the infrastructure of the production base, the level of informatization and automation, etc. In manufacturing high-tech products, it is necessary to consider the additional factors, limiting production efficiency, namely: the limited time allocated to creating the innovations; higher investments in rapid renovation of production facilities, necessitated by their obsolescence, the need for highly qualified personnel and the availability of specialized knowledge and technologies. The article discusses the ways of enhancing the efficiency of production organization, promoting the growth of manufacturing high-tech products in conditions of resource constraints

*Key words:* efficiency of production organization, high-tech products

*Moiseeva N.K., Badorina A.A.*

**THE ADAPTATION OF BUSINESS PROJECTS AND PROCESSES TO CONDITIONS OF  
PRODUCTION LOCALIZATION**

The possibilities for adapting the projects and inter-firm relations to real market conditions (including international ones), as well as determination of the acceptable degree of localization are important areas of development, requiring the relevant methodological support in the event of growing competition. Under conditions of confrontation in foreign markets, the development of business cooperation imposes new requirements for business organization and the development of business projects.

The article deals with the features of business organization in companies with foreign capital. It examines the possibilities of adapting business processes and inter-firm relations, and proposes the concepts of adaptation marketing and production localization, as well as the tools for their implementation in conditions of the Russian business. The algorithm of business process adaptation is represented as a closed cycle with a certain fixed interval, comprising 8 consecutive units, whose goal is to match the targets and the actual indicators of system performance. The example is given, related to the sphere of production localization. The application of the proposed methodology results in increasing the company competitiveness and improving the quality of goods and services provided on the market, due to enhancement of company performance in conditions of external and internal changes

*Key words:* business process, business project, inter-firm relations, localization, concept, production, static and dynamic adaptation

*Kuznetsova M.N.*

**THE ORGANIZATIONAL RESERVES FOR CORPORATE EFFICIENCY ENHANCE-  
MENT**

The production plans drawn up by companies envisage the increase of production volume and the improvement of product quality. However, it ignores the fact that significant production losses and the low quality of finished products reduce their competitiveness and production efficiency, which eventually demonstrates the low efficiency of the company as a whole. In this regard, it is important to identify the available organizational reserves. The present paper deals with the problem of identifying the organizational reserves for enhancing the efficiency of companies. The purpose of

the study is to determine the list of factors affecting the better use of labour resources and, as a consequence, the company efficiency. The stated goal of the study is achieved by solving such tasks as: 1) determining the nature of organizational reserves for enhancing the company efficiency; 2) identifying the main groups of organizational reserves; 3) specifying the main factors affecting the better use of labour resources. The current study specifies the key aspects of assessing the working conditions, and reviews the indicators reflecting the level of labour organization

*Key words:* organizational reserves, better use of labour resources, working conditions

---

## **TRAINING AND RETRAINING**

*Turovets O.G., Rodionova V.N.*

### **ON TRAINING SPECIALISTS IN THE SPHERE OF PRODUCTION ORGANIZATION AND MANAGEMENT**

At present, many companies experience the shortage of specialists, capable of exercising effective management of industrial activity. Therefore, it is particularly important to prepare engineers and specialists, able to solve the tasks related to contemporary production organization and management. The article proposes a new type of production specialist with comprehensive training in engineering and economic management. The professional activity of such specialists is focused at the corporate industrial system; the methods of planning, approbation and scientific investigation of industrial systems and their inherent processes; the methods and means of planning and implementing the systems of labour organization and employee remuneration; the organization and management of corporate innovation activity and the social aspects of production and labour organization at an enterprise. In the authors' view, the specialists must be trained in production management, and, after a five-year course of study, the graduates of this speciality must be awarded the qualification of engineering manager

*Key words:* training of specialists, engineering manager, production management

---

## **MANAGEMENT OF INNOVATIVE PROCESSES**

*Ovchinnikova T.I.*

### **INTEGRATION MECHANISMS OF THE ORGANIZATION OF PRODUCTION OF COMPETITIVE INNOVATIVE PRODUCTION**

In article the concept "production program" is specified, features of the comprehensive (integrated) production program of the enterprises of concern focused on the state and all-organizational strategy and the end user are revealed, modern approach to integration mechanisms of the organization of production of competitive innovative production is considered, the method of the analysis of hierarchy of Thomas Saati promoting in the conditions of limited amount of criteria and convenient formalization to adoption of optimum decisions on the organization of production of competitive production is offered. Also in article the program of the organization of production of competitive innovative production of JSC Sozvezdiye Concern including the plan of a production activity, the plan of financial and economic activity, the plan of social development of collective, organizational structure and personnel strategy of concern is offered. On the basis of the program offered by the author for the organization of production of competitive innovative production the strategic plan of production and innovative activity of JSC Sozvezdiye Concern is made. The strategic plans and expected indicators of concern calculated on the basis of modern methods presented by the author will allow to create conditions for the effective organization of production of competitive innovative production of a hi-tech complex

**Key words:** organization of production, competitive production, innovative production, integration mechanisms, program of the organization of production of competitive innovative production

*Prypoten V.Y., Mova Y.V.*

### **THE ESSENCE AND STRUCTURE RESEARCH OF THE ENTERPRISE INNOVATION POTENTIAL**

In the article there has been defined the problem of the absence of the single universal “innovative potential” term interpretation as a complex category in the economic science. There has been determined that the identification of the “innovative potential” and “science technical potential” notions was mistaken. The examples of the term interpretations by different scientists have been represented. The three main theoretical approaches to this notion definition have been researched (resource, effective and diagnostic). There have been studied the features of each of them, which help pay attention to the conceptual base of the term essence. Two more approaches to the certain economic notion interpretation have been developed, the supporters of these approaches define the “innovative potential” as the collection of other potentials or as the part of another potential. In the frame of the article there have been described the innovative potential development stages (resource, facility stage and the readiness stage to the innovation activity), also there have been considered the components, which form its structure (resource, effective, inner components and innovation culture). There has been defined that the resource component is the main fundamental element and influences directly on the innovation potential formation, and the effective component is the reflection of the available abilities implementation final result, the inner component includes the means and methods of the innovation process management, and the innovation culture is the innovation reproduction accelerator. There has been suggested the author's conception of the “innovative potential” term as the multilevel system

**Key words:** the innovation potential, the resource approach, the effective approach, the diagnostic approach

*Gubaidulina R.H., Petrushin S.I.*

### **ORGANIZATION OF THE TRANSITION TO THE PRODUCTION OF NEW PRODUCTS**

The analysis of the existing ways of transition to release of a new product is made and the new way for conditions of mass quick-change type of production is offered. Thus as criterion of a choice of a way of transition optimization of expenses for production serves. The concept about the period of an obsolescence of a product which is understood as the calendar term of release from the first copy before removal of a product from production is entered. It is established that service life of material production resources (the equipment, equipment and other means of technological equipment) has to equal to the period of an obsolescence of the let-out product to this resource. Analytical expression for the greatest possible profit of machine-building enterprise on the basis of the analysis of the current specific given costs of this production is received and three ways of its increase are planned, namely: increases in a difference between the price and prime cost of a product, reduction of operating costs of production and reduction of a step of release of products. It is established that the third way is the most effective. The conclusion is drawn on need of simultaneous optimization of a design and manufacturing techniques of a product. Recommendations about configuration of the enterprise working on the offered way of transition to new production are made

**Key words:** the life cycle of products; method of producing a new product; the profits of the enterprise; obsolescence of products; the discharge stroke; type of production

*Djurabaeva G.K., Panarin I.I., Djurabaev K.T.*

### **PRECONDITIONS FOR THE DEVELOPMENT OF INNOVATION MANAGEMENT**

Address the priority problems of the stable functioning of the economy, the transformation of the economic system of Russia and its integration into the global business community, the development industry as core indicators that evaluate the effectiveness of innovation processes affecting socio-economic development of the country, the development and use of effective methods and forms of management of innovative activity. Operational management, not with the system properties integrity with these tasks they can't handle, so must be an elaborate scheme to upgrade the production, in the long term, the possibility of the use of automated systems of econometric models.

Characterized by the unique dynamics of the system of economic use of scientific and technical basis, based on the creation of favorable conditions for innovative climate to attract funds for the implementation of innovations becomes a special form of management of the phenomenon of scientific and industrial conglomerates, diverse consortia of industrial and technological clusters. Specific examples shown to accelerate the development, transfer and commercialization of technologies, strengthening the position in the field of early promotion of fundamentally new products with the lowest risk. Informational-methodological base on the content, forms of organization, methods of access users and data exchange must comply with the new requirements management based on modern computer technology to a significant extent determine the effectiveness of innovative activity, the presence of common criteria and methods for planning, accounting, labor, quality control, decision-making, modeling and optimization of their consequences. The mechanism of management of innovative development of the enterprise is understood as a number of specific functions, the implementation of which leads to innovative changes

**Key words:** innovative modernization of the economy, monitoring of information, proactive management, upgrading of production, technology transfer, the transition from the export of raw materials to the innovation model of economic growth, the concept of state regulation, information provision business processes, agility, marketing models, identification of goals, reform of the statistics information

---

## **MODELING OF INDUSTRIAL SYSTEMS**

*Nemtseva M.A., Lapshina M.L.*

### **THE IDENTIFICATION OF LEAST SIGNIFICANT CLIENTS BASED ON THE METHOD OF SMOOTH NOMINAL OPTIMIZATION**

The article discusses the possibility of finding the solution to the problem of ranking the company clients and identifying the least significant ones. The objective grounds have been formulated for determining the priority status of clients. The basic criteria, constituting the rating component of company clients, have been specified. The procedure of client base systematization has been proposed, using the method of smooth nominal optimization, based on application of utility function for both target and restrictive criteria. The geometric interpretation of such a function can be represented as a rectangular pulse with the leading edge at a point  $c_j$ , in view of the utility function value for fixed discrete values of the indicator  $j$ , included in the range under review and located at the peak of the pulse. The use of the threshold indicator value as the minimum permissible one is theoretically justified, and the deviation of the indicator value from the threshold one helps to increase it. The possibility of resetting the utility function is substantiated. The article also presents the algo-

rithm of scalar assessment of clients for setting the most objective rating. The example is given showing how to solve the practical task on the basis of the additive multicriteria utility function

**Key words:** utility function, optimization, rating, competitiveness

*Kulakova Y.N.*

#### **THE STUDY OF NORMALIZATION FACTOR PERFORMANCE OF THE MULTI-PRODUCT CONTINUOUS PRODUCTION LINE**

The article studies the performance of the normalization factor in the economic-mathematical model with extended delivery time, typical for organization of production by a multiproduct continuous production line. The aim of the study is to determine the normalization factor values in the model of manufacturing several product types by a multiproduct continuous production line, given the same maximum stock level for each product type and equal duration of production periods within a single production cycle. The formulas have been derived for calculating the minimal and maximal values of the normalization factor for cases of two, three and  $n$  types of products, manufactured consecutively within a single production cycle. The real normalization factor values with specified restrictions have been calculated for the model of a multiproduct continuous production line. It is established that the normalization factor value of 0.5 is recommended in literature and commonly used in calculations, however, it only conforms with certain specific instances of implementing the given model. It is shown, that the practical application of the universally accepted normalization factor value of 0.5, disregarding the real conditions of industrial plan implementation, may result in underestimating the size of working capital, invested in company inventories, and, consequently, in significant financial loss

**Key words:** organization of production, multiproduct continuous production line, normalization factor, model

*Pekina K.A.*

#### **METHODS AND MODELS OF FORMATION OF THE PRODUCTION PROGRAM OF THE ENTERPRISE IN THE CONDITIONS OF COMPETITIVE INTERACTION IN THE COMMODITY AND RESOURCE MARKETS**

The contemporary phase of the Russian industrial development, (especially, the one of its science-based areas, including the rocket and space industry) is characterized by the stable tendency towards the increasing presence of Russian companies in world markets, including the world market of space services.

In an increasingly globalized economy, the successful promotion of domestic rocket and space equipment involves the competition with the world's leading companies, integrated into large rocket and space corporations.

The present article is dedicated to solving the problem of developing the company production program, which appears to be one of the initial factors of improving the reliability and efficiency of the company in conditions of competitive interaction. The article deals with formation and investigation of the organizational mechanism of competitive interaction between the companies in commodity and resource markets.

The article studies the problem of selecting the competitive strategies based on the criteria of profit maximization in conditions of competition. The equilibrium rates of production volumes and purchased resources have been specified for each market participant, along with equilibrium price values, ensuring the sustainability of the market and production profitability.

**Key words:** production program, competitive interaction