COSTOMER FOCUS IN THE PROJECT COMMUNICATIONS MANAGEMENT (ON THE EXAMPLE OF HOUSE BUILDING) (p. 4-10)

Tetyana Fesenko, Dmytro Minaev

Current researches on forming high-quality living space in the context of the anthropocentric concept of building were analyzed. Peculiarities of communications management in housing projects were described. A communicative model for housing project management was outlined. Information model of housing project management by structural decompositions of subjects, objects and processes was presented. A comparative analysis of the structure of the processes of field of knowledge "Project communications management", presented in the fourth and fifth editions of PMBOK was performed. A model of the process of "Identifying project stakeholders" for housing projects with specifying "source information", "tools and techniques", "final information" was developed. The basic model of a matrix of needs to work with beneficiaries-residents was improved. It was proved that customer-focused strategy in housing projects can be realized by decomposition of structural models of the process of "Managing stakeholders' expectations". Tools for improving communications among the builder, designer, contractor and "active residents" was proposed.

Keywords: managing expectations, stakeholders, beneficiaries, communications, building project.

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DEVELOPMENT OF MICROLOGISTICS SYSTEM OF DELIVERY OF FINISHED PRODUCTS OF METALLURGICAL ENTERPRISES BY RAIL TRANSPORT (p. 10-18)

Sergiy Turpak, Sergey Gritsay, Elena Ostroglyad

Logistics flows of metallurgical enterprises have certain characteristics, conditioned by their capacity and dependence on complex technological processes. Enterprises have reliable levers of influence mostly on in-plant transport processes, therefore, the studies to improve optimization methods of transport-storehouse processes in this element of logistics chain were performed. Micrologistics systems of interaction of flow processes for basic general options of deliveries were developed, the structure of which is as follows: the flow of cargo, rolling stock, information, documents and payments is shown in the time field. Operations that are performed with the corresponding flows are marked on the ordinate axis. The proposed system is a tool to identify "bottlenecks" in the field of graph of explicitly presented processes and optimize the supply chain as a whole with minimum total costs. In fact, the research results are improved methods to develop transportation flow charts. It was proposed to optimize the system of delivery of finished products of metallurgical enterprise by in-plant transport based on logistics principles. In the improved system, the overall cargo delivery term is reduced mostly by eliminating some operations with the rolling stock. Some cargo operations and execution of documents are no longer needed. A methodology for evaluating the effectiveness of change of transport-technological process of delivery of finished products was proposed.

Keywords: logistics flow, metallurgical enterprise, transportation, micrologistics structure, transport-technological process.

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METHOD FOR PROBLEM SOLUTION OF PRODUCT STRUCTURE OPTIMUM AUTOMATED FORMATION (p. 18-24)

Svetlana Kochergina, Igor Shevchenko

In this paper the improved method of product optimal composition at an engineering plant has been suggested according to the complex approach. The method uses a multi-component model of the specification tree and model of product optimal composition selection taking into account the ranking of selection criteria. By means of the Pareto plurality formation, the ranking selection criteria, the use of method of paired comparisons and adaptive integral optimality criterion it has been determined the possibility for flexible response to the changes in market conjuncture and the prospects for the production situation which makes it possible to coordinate the priorities assessments between the customer and the manufacturer. Thus, based on the existing nomenclature in the enterprise, the above-stated method allows to offer the most effective solution for the designer which forms the draft proposal to the potential customer taking into consideration particular individual requirements.

Keywords: individual requirements, integral criterion of optimality, priorities assessments, the Pareto set.

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MINIMIZATION OF DELAYS OF ROAD USERS ON REGULATED CROSSWALKS (p. 25-28)

Sergey Gritsay, Vyacheslav Trushevsky, Daniel Nykyforovskyy

Several methods, used for determining the parameters of traffic light control cycles at crosswalks considered in the paper. It was found that they have disadvantages: do not take into account the delay time of pedestrians, do not allow to balance the duration of enable signals for transport and pedestrians. It was found that improved traffic light cycle structure at crosswalks is effective only at a high discipline of pedestrians, which depends on the justification of their delays by intense transport phases.

In order to expand the scope of effective application of traffic lights at crosswalks, a method for determining the parameters of the control cycle at a crosswalk, based on the alignment and minimization of delay times for all road users, passing through the crosswalk is provided. This takes into account the values of all variables, influencing on the total hour duration of the delay of all road users.

The implementation of this method will allow to enhance the capacity of crosswalks for both transport and pedestrians by reducing the groups of road users, gathering for the time of disable signals and improve traffic safety by reducing the number of violations by pedestrians.

Keywords: crosswalk, delay, cycle, phase, duration, cycle, pedestrians, passengers, regulatory alignment.

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RESERVATION OF TRANSPORTING CAPACITIES OF FREIGHT TRANSPORT FLEET DUE TO THE QUANTITATIVE INCREASE OF FLEET FREIGHT CAPACITY (p. 29-33)

Kateryna Kovtsur

The potential to improve the efficiency of delivery with minimal costs due to reservation of transporting capacities of freight transport fleet in the logistics retail chains is presented in the given paper.

The minimum of reduced logistics costs, which consist of shipping cost and loses, associated with incomplete delivery of goods to the retail network, was selected as a criterion of effectiveness. The mathematical models of impact of delivery conditions (characterized by the features of the traffic area and demand for goods) and parameters of the technological delivery process and transporting capacities of freight transport reservation methods due to the quantitative increase of freight transport fleet onto reduced logistic costs were developed. According to the result of numerical experi-

ment there were obtained the approximation models of technological parameters and reserve of fleet transporting capacities by various means. Using the presented dependencies will allow companies that deliver "small" formats to the retail trade network to reduce logistics costs.

Keywords. Transporting capacities, reserve, demand for transport, additional fleet freight capacity.

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SELECTING THE NOMENCLATURE OF QUALITY INDICATORS OF HYBROPHOBIZED FUR VELOUR BY EXPERT METHOD (p. 34-39)

**Anatoliy Danylkovych,
Nataliya Chlebnikova, Natalia Omelchenko**

The expenditure model of fur product, made of the hydrobized fur velour, exploited at low temperatures, taking into account large dynamic loads, high humidity (rain, snow) was constructed. Scientific and regulatory documentation on existing nomenclatures of quality indicators of fur semi-finished products was analyzed. A common list of quality indicators of the fur velour was compiled. Questionnaires, instructions were developed, an expert group was formed. The survey was carried out, and results processing was performed using the author's application program. Significance of quality parameters of the hydrophobized fur velour was defined.

To assess the hydrophobized fur velour, the question of what properties new materials should be endowed with and what parameters determine their quality is relevant.

Significance of indicators, characterizing the hydrophobized fur velour quality was determined. Nomenclature of these indicators included the total thermal resistance of fur skin, relative residual elongation of skin tissue at a stress of 4.9 MPa, color design of skin tissue and hair, water permeability of skin tissue in dynamic conditions, its relative elastic elongation at the stress of 4.9 MPa, vapor permeability, air permeability, tensile strength of skin tissue, decoration and relative total elongation of skin tissue at a stress of 4.9 MPa. For further research, in the process of ranking, three groups of indicators that characterize the functional (operational), aesthetic, ergonomic (hygiene) properties were selected, their significance was defined.

For the consumer it is important that clothes, made of fur velour, which is exploited not only at low temperatures and dynamic loads, but also in conditions of specific precipitations such as rain, sometimes even snow, had proper moisture resistance. The nomenclature of indicators of consumer properties is sufficient for an objective assessment of complex quality indicator of hydrophobized fur velour, which is confirmed by the high concordance of opinions of specialists, who participated in the expert survey (concordance coefficient was 0.894).

Keywords: hydrophobized fur velour, quality indicator, water permeability of skin tissue, properties.

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DEVELOPMENT OF ACTIVITY MODEL OF LABOR SAFETY ENGINEER USING MARKOV CHAINS (p. 39-43)

Yulia Chernega, Victor Gogunsky

Activity model of the labor safety engineer was developed in the paper using homogeneous Markov chains with discrete states and time. Management systems in the organizational-technical systems consist of individual processes and relationships among them. Forming a rational combination of parametric and structural system characteristics will allow to create new models, methods and tools to achieve the goals of these systems. The paper examines the activities of the labor safety engineer.

When constructing Markov models, decomposition of the studied system into separate states with building multiple relations among the given states is the most difficult task. In the developed oriented graph, nodes correspond to states and edges of the graph form communication interaction channels, which transmit control actions. A directed graph can be represented by an adjacency matrix. Each row of the adjacency matrix displays transitions to other system states.

Due to the fact that the transition probabilities of the system are related to the process execution time, it is possible to estimate the

total workload of labor safety engineer. For that, the ratio of total state probabilities by groups of processes was found.

The results indicate that there is some increase in the portion of time that is given to information processes to the detriment of other job duties. Markov model allows to obtain a quantitative description of the job strain of the labor safety engineer, which is regulated by the enterprise standards.

Keywords: labor safety, engineer, job description, Markov model, workload, time, estimation.

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A STUDY ON THE PROPERTIES OF THE INFORMATION MODEL OF SUSTAINING THE REGIONAL ECONOMIC DEVELOPMENT BY THE TARGET PROGRAM METHOD (p. 43-47)

Nadiya Sokolova, Halyna Rajko, Yevhen Danylets

The paper presents the information model of the regional development control through the prism of the integral indicators of strategic programs while involving the target program method of control aimed at balancing social and economic status of the region.

The value of the research is based on the fact that the impact of the strategic regional development programs is evaluated by the expenses criterion (as an integral indicator) that helps control the regional budget expenditure.

The results of the research are reflected in the paper that presents economic and mathematic models of optimizing expenses on implementing the range of regional programs, with respect to minimizing expenses on the selected multitude of the regional development indicators. The models facilitate optimal management for implementing the range of development programs. Matrix and integral equations of the suggested model help analyse the dynamic change in the regional welfare indices as well as accomplishments in the regional development programs.

The paper presents the notion of optimal strategy of the regional development. The strategy is important for eliminating the descriptive development strategies and specifying the managerial aspects of their implementation.

Keywords: target program method of sustaining the regional development, integral indicator, optimal development strategy.

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EFFICIENCY RESEARCH OF THE CRITERIONS FOR IMPLEMENTATION OF SEPARATED LANE FOR BUSES USING VISUM (p. 48-55)

Roman Zubachyk

The article presents verification of the proposed criteria for implementation special bus lanes and efficiency of their use in real conditions, namely in the city street spacing. VISUM helps determine the parameters of public transport work, in particular the bus operational speed and delays at stops. Results obtained by using VISUM show that they are close to those obtained in natural studies. The model adequacy to real conditions made it possible to check the feasibility of introducing special bus lanes on street spacing according to the three criteria and find out the operational speed of a bus in cases where special bus lanes are available and unavailable on the street, and assess the impact of introduction of special bus lanes on changes of traffic flows both at the local level (within a street spacing's) and in the city in general. The obtained results of studies point out to efficiency of the proposed criteria of introduction of special bus lanes on street spacing, their simplicity in use and feasibility.

Keywords: special bus lanes, criteria for implementation, street spacing, speed bus operating speed.

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THE DEVELOPMENT OF MATHEMATICAL MODEL FOR COMPETITIVE PROCESSES (p. 55-60)

Alrefai Waleed Ahmed, Igor Naumeyko

Mathematical models of competitive processes in the economy using known universal models that describe the behavior of counterparties in the market are found in this article.

The object of research is to build mathematical models of competitive processes in a pair manufacturer – secondhand dealer, and to process and convert the economic parameters that are necessary for the models.

The methods of research use analysing and solving equations for the known and improved universal models that describe the behaviour of contractors in the market. Mathematical package for construction of schedules of dependences is used.

The goals are to construct and research the modified model on the basis of mathematical model by Lotka-Volterra and its further development, and to create software product for statistical processing the economic information.

Results – the mathematical model "manufacturer – secondhand dealer" is created, its modified version is received, and with the help of mathematical package Mathcad, researches of models were done. Prospects of the further improvement of models are revealed. The software product is developed, allowing to process the statistical economic information.

On the basis of mathematical model by Lotka-Volterra and its further development a mathematical model of several producers and one middleman is created. Its modified version is studied using mathematical package Mathcad. The nonstable behavior of the counterparties is found. For this model some prospects for further improvements is identified.

Keywords: Mathematical model, economy, competition, modification, Lotka-Volterra model, producer, second-hand dealers, Mathcad, instability.

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DEVELOPMENT OF ANALYTICAL MODELS OF OPTIMIZING AN ENTERPRISE'S LOGISTICS INFORMATION SYSTEM SUPPLIES (p. 61-66)

Anatoly Slesarenko, Alexander Nestorenko

The creation of an efficient enterprise's logistics information system requires a set of mathematical decision support models. The existing inventory models that are used in warehouse logistics have low adequacy with the real logistics processes.

The research examines the reasons for the low efficiency of the basic warehouse logistics models and analyzes their development. When determining the form of the total cost function in the EOQ model, the costs of delivery and storage related to different moments of time were not taking into account. Failure to fulfill this requirement is one of the main factors affecting the adequacy of the mathematical inventory models, which are based on the EOQ model.

The developed mathematical models, representing the refined Wilson's model, allow to justify the consignment delivery using several vehicles. The conditions for applying the model to the order cost, depending on the consignment size were determined. The algorithm for determining the optimal number of vehicles for the consignment delivery was developed.

Using the developed mathematical models will allow making the best decisions in warehouse logistics. The findings to the EOQ model development can be used for other inventory models that will create an effective information logistics system.

Keywords: information system, logistics processes, mathematical inventory models, optimization, costs.

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