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## ABSTRACTS

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### **IDENTIFYING THE FACTORS INHIBITING RESEARCH ON URBAN FREIGHT TRANSPORT IN DEVELOPING COUNTRIES: REVIEW OF STUDIES IN INDIA**

(pages 1-10)

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**Keywords:** freight transport, urban freight, city logistics, developing economies, Indian cities

**Abstract:** Most of the cities in developing countries are found to have non-uniform distribution of urban space, complex land use patterns, mixed traffic conditions, extensive use of non-motorized vehicles and lack of traffic discipline. In comparison to the developed countries, it is more complicated to manage urban freight transport in developing countries due to the lack of sufficient infrastructure, wide socio-economic gaps between urban and non-urban areas and haphazard peripheral developments. Therefore the methods and strategies used to manage urban freight transport in developed countries cannot be directly used for cities in developing countries. It is necessary to devise distinctive solutions to improve the efficiency of urban freight transport in these cities, which may otherwise, inhibit the economic growth of these cities as well as hamper the overall momentum of country's GDP growth gathered over decades. In recent years some studies focussing on urban freight transport are carried out in India, China and Brazil. This paper reviews urban freight studies carried out for Indian cities. India, world's second most populous country to China, has 39 cities with a million plus population. Most of its cities are facing problems like congestion and air quality degradation due to inefficient freight movement practices. Review of urban freight studies is carried out based on different parameters influencing efficiency of freight movement. Various challenges and limitations faced by the researchers and administrators are discussed. Based on the review results, suggestions and future scope for research in different aspects of urban freight are presented in the paper.

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### **KINEMATICS OF POSITIONING DEVICE FOR MATERIAL HANDLING IN MANUFACTURING**

(pages 11-18)

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**Keywords:** kinematics, positioning device, matrix methods

**Abstract:** Different types of robots are used in many areas of industry. Industrial manipulators are used to ensure productivity and flexibility in automated production lines. Most of them is used for tasks that automatically repeat the same operation in a familiar environment. The key element in the development and analysis of industrial robots is their kinematic analysis. The article deals with the kinematic analysis of this positioning equipment. Individual relations of kinematic quantities are plotted graphically. Matrix methods were used for the analysis.

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## THE USE OF PROGRESSIVE GRAVITATIONAL METHODS IN THE LOGISTICS OF RAIL PASSENGER TRANSPORT

(pages 19-25)

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**Keywords:** gravitational methods, passenger transport, railway, timetable, optimal traffic service

**Abstract:** The main strategic goal of EU transport policy is to support public passenger transport and railway transport as a key transport mode. It is also very important to develop and improve logistic processes in passenger transport. To meet these goals it is necessary to use professional and scientific methods, for example gravitational methods. These methods can be included among progressive empirical methods and models that are used to generalize specific results and offer a general solution to the problem, from practical knowledge to theoretical formulation. These methods are utilised in the natural sciences but their using in transport processes is very important too. One of the best known empirical methods are Nyvig's and Lill's gravitational methods. They are especially used in transport planning and organizing, determining of the traffic potential, optimization and rationalization of timetables and traffic service. In the contribution the authors deals with using of the current and new progressive gravitational methods in the context of rail passenger transport logistics. The first chapter comprises narrow connection of the logistics and rail passenger transport including the explanation of their function in rail passenger transport. The next chapter contains an analysis the current research of raised issues. The most important scientific part consists of theoretical concept of the gravitational methods in railway passenger transport and its various modifications. Theoretical principles of the new progressive Lill's gravitational model form including its practical application at the chosen railway passenger transport routes are explained and analyzed in the fourth and the fifth chapter.

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## APPLICATION OF PERIODIC REVIEW INVENTORIES MODEL IN A TYPICAL MEXICAN FOOD COMPANY

(pages 27-36)

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**Keywords:** inventory management, food Mexican company, periodic review model, perishable products

**Abstract:** The Mexican family companies must face the challenges of market volatility with greater recurrence, forcing them to use effective tools and models for the proper management of their organizations and inherent activities, such as inventory management. Therefore, this research was carried out at "Moles Santa Monica", a typical food company located in the city of Puebla, Mexico. This enterprise has reflected a high variability in the administration of its inventories, with a Coefficient of Variation (CV) greater than 0.2 in most of their portfolio products. In this way, the objective of this study was to propose an inventory management model that might reduce the shortages and overstock, and also; improves its performance and profitability when it is managed. The applied methods were Pareto and ABC model to choose correctly the best seller company products. The inventory management model chosen was the periodic review (R, S) as well, for being the most effective and the one that best suited the circumstances of the company in question. Three of the portfolio products were studied (MPP10, MPC10 and COP10) due to they are the most representative in incomes and valuables for the company managers. The results allowed us to propose the review periodic model (R), the optimal quantity of units to produce (Q), the safety stock (Ss) and the maximum inventory (S) for each product. We conclude that this model will help the company to face the uncertainty of the demand. Finally, we include limitations and future studies.

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**ANALYSIS OF CONVEYOR DRIVE POWER REQUIREMENTS IN THE MINING INDUSTRY**

(pages 37-43)

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**Keywords:** mining, conveyor, drives, industrial logistics

**Abstract:** This article presents the analysis of conveyor drive power requirements for three typical mining conveyors. One of the conveyors was found not to be able to start when fully loaded. The analysis indicates that two of the conveyors are adequately powered while one is underpowered. This was found to be primarily the result of the maximum tonnage of the two adequately powered conveyors being 1500 tonnes per hour (TPH) while the inadequately powered conveyor was classed with a maximum tonnage of 1800 TPH. It is recommended that the current draw for each motor when fully loaded be measured. This will be compared to the design. Further analysis was done to allow 2000 TPH on all conveyors. The required upgraded drive size is presented. This article does not address the structural adequacy of the supporting structure. Rather, only the capabilities of the conveyor belt and drives to transport the required TPH.

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**SUSTAINABLE HUMAN RESOURCE MANAGEMENT AND GENERATIONS OF EMPLOYEES IN INDUSTRIAL ENTERPRISES**

(pages 45-53)

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**Keywords:** generational groups, industrial enterprises, performance, remuneration, rewards

**Abstract:** Sustainable human resource management is one of the distinguished approaches for ensuring the organizational performance of an organization in today's turbulent business environment. Human resource management ensures the achievement of the organizational goals through practices of managing human resources. Sustainable human resource management thereby ensures the development and maintenance of the potential of all employees in the organization. The main goal of this paper is to present the results of research in the field of human resource management with respect to different generations of employees in industrial enterprises operating in the Slovakia. The research sample consisted of  $n = 1\,471$  respondents (employees of industrial enterprises). The most important results of the presented research is the finding that employees of industrial enterprises consider work performance, which influences their remuneration, to be important. The research showed that there are statistically significant relationships between employees at managerial and production positions and the perceived importance of work performance when determining the income of managers and production employees ( $r_s = 0.274$  and  $r_s = 0.363$ ).

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## **AUTOMATIC IDENTIFICATION SYSTEMS FOR MANAGEMENT - MATERIAL FLOW CONTROL AND STOCK STATUS**

(pages 55-64)

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**Keywords:** RFID, RFID system, smart logistics, automatic identification

**Abstract:** The subject of the article is to define the current state of the information system, to describe the use of technology in practice and to understand the principle and benefits of smart logistics. To describe the operation of RFID technology and systems that are necessary for the effective operation of a comprehensive automatic identification system. The issue is to define the current state of information technology and create a project for automatic identification. The aim of the smart logistics project is the overall improvement of the production process, registration of parts and the overall highlighting of the company's reputation. Automatic identification systems are nowadays one of the fastest growing areas, whether information logistics or logistics as such. Manufacturing companies are trying to apply more and more elements of these systems to their production processes. Slovak companies, which have their production process based on

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international orders, are increasingly trying to optimize their production and thus approach Western countries in the field of automatic identification and registration of parts.

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## THE IMPACT OF LOGISTICS ON THE COST OF PREFABRICATED CONSTRUCTION

(pages 65-71)

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**Keywords:** logistics planning, prefabricated construction, wood-based buildings, transport cost, storage

**Abstract:** The aim of the paper is to emphasize the need for logistics planning in prefabricated construction in Slovakia. A construction contractor can achieve profit and efficiency of a construction project through well-managed resource logistics. Moreover, it helps to ensure the competitiveness of prefabricated construction compared to traditional on-site construction. In the case study of a wood-based family house, the construction cost and the transport cost are analysed in relation to available logistics chains. Three variants of wood-based construction systems are adopted in the study: the column-beam construction system, the construction system based on Structural Insulated Panels (SIPs) and the panel construction system. The results of the study found that the transport cost does not represent a large share of the total construction cost of the wood-based family house. This applies to all three variants of the construction system. A well-planned logistics of resources – people, materials, machines – can help to achieve an efficient and rational construction cost and construction time of a project. Thus, a client of a wood-based prefabricated building does not have to worry that the transport cost related to the transport of large, prefabricated components will make the construction of the building markedly more expensive.

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## ANALYSIS OF INTERNAL LOGISTIC COST ON EXPORTS OF PERUVIAN COFFEE IN THE PERIOD 2015 – 2019

(pages 73-81)

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**Keywords:** logistics costs, transport, cluster, security, corridors

**Abstract:** The objective of the research was to analyse the main components of internal logistics costs that are shown in the process of Peruvian coffee exports in the period 2015-2019. This study used various government sources, document review, and extraction of information systems. To do this we take into account 6 departments with greater coffee production, connected with three logistics corridors that have as a starting point the production areas and reach the export channels of Callao and Paita. Also, using the information gathered from the logistics performance index, a brief internal transport comparison was made between Peru and Colombia. As a result, the logistic cost of both countries is higher than 14.1% (Latin American average), taking into account that in both countries the only internal logistic component in which they coincide is transportation. It is concluded that national transportation hurts impact on logistics costs, since these are affected in the final price of coffee and the profitability of the Peruvian farmer.

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## MODELLING INNOVATIVE LOGISTIC CLUSTERS FOR REINFORCING INTERNATIONAL ECONOMIC INTEGRATION USING AN EXAMPLE OF A METALLURGICAL COMPLEX

(pages 83-93)

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**Keywords:** innovation, synergistic effect, logistic cluster, metallurgy

**Abstract:** The aim of the article is to present the proposed model of an international innovative logistics cluster, which aims to stimulate the renewal of the economic potential of all interested partners with a focus on the metallurgy. Experts analyse ongoing changes and trends that have affected business and logistics processes and define certain trends that could lead to an improvement in the situation, such as the use of a "Cluster strategy". The subject of the research is the analysis of the cooperation between international scientific organizations, research centers and companies within the proposed cluster. A model of the structure of the cluster was created, which will make it possible to monitor global processes in the field of economics and logistics. A simulation of the production of a new product was performed to verify the proposed cluster's expected effects. Therefore, a model was used to determine the value of the company to capture

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**ABSTRACTS**

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complex links. This model is based on Method DCF using structural analysis principles to objectively evaluate the influence of factors affecting the change of cost potential in the immediate vicinity of the enterprise. During the verification of specific data, the considered project's value was quantified, and obtained results showed that synergy effects could be expected. The verification results show that the interaction and cooperation between universities, research centers, and industrial enterprises at the international level can be made more efficient with an emphasis on effective and lasting cooperation in the field of innovation and technology transfer.

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