
ABSTRACTS

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ANALYSIS OF THE PRINCIPLES OF REVERSE LOGISTICS IN WASTE MANAGEMENT (pages 95-106)

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Keywords: reverse logistics, waste management, semi-submersible containers, economic and environmental advantages
Abstract: The goal of mentioned contribution is to moderate the unwanted effects of economics on environment in the form of more purposed economy with material sources from recycling, collection, separation and processing of returnable products. It is a global trend nowadays to lower waste production and to minimize effects on the environment. We are going to deal with effectiveness of partly underground containers in Slovakia and new trends about possibilities of other uses of PET bottles. The article deals with the analysis of whether the level of waste management services is at the required level due to the wide range of services provided within reverse logistics. Article's output is created model of reverse logistics and subsequently analysis of cost effectiveness considering economic aspects entering into the reverse model has been made during its use.

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SOLVING THE BOTTLENECK PROBLEM IN A WAREHOUSE USING SIMULATIONS (pages 107-116)

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Keywords: bottleneck, workforce allocation, simulation, ExtendSim
Abstract: The uneven workload distribution and working time utilisation create a bottleneck, leading to inefficient utilisation of capacity and increased costs. A bottleneck is a limiting and risk factor for any business entity. In the case of a distribution warehouse, the bottleneck limits its ability to meet the requirements for sending an order within the required time limit. Delays at any phase of a distribution process may result in non-compliance with customer requirements. In

solving capacity problems and bottlenecks elimination, computer simulations and optimisation are often used. The article presents a basic simulation analysis of workload distribution and work times, useful for logistics companies, thus for the area of human and financial resources. In the article, the use of simulations in the ExtendSim9 program to eliminate the bottleneck is discussed. The bottleneck is solved by experiments on a simulation model when optimal workers assignment to individual workplaces of the warehouse is sought. The two final proposals for workers allocation, with the current and increased number of workers, are compared in workforce utilisation and system stability. The simulation method allows verification of the proposals' impacts in advance and practically with no financial costs.

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IMPACT OF THE PANDEMIC COVID-19 TO CRIMINAL ACTIVITY IN TRANSPORT

(pages 117-122)

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Keywords: crime, transport, COVID-19, good, loss

Abstract: 2020 has been a year like no other for most of us, dominated by a virus that has cost over 1.15 million lives globally and plunged the world into an economic recession which the Chief Economist of the World Bank says it could take five years to recover from. For business leaders in every sector, over the past six months it has been almost impossible to focus on anything but finding the most sustainable way through this sudden and unexpected crisis – and, for most, it will be hard to think about anything else for a long time to come as they battle to protect the futures of their organisations. Against such a dramatic and damaging backdrop, every business can be forgiven for letting Covid-19 dominate their thinking. They have shareholders to satisfy, customers to support and jobs to protect. Right now, the very survival of companies of every size remains in the balance with no end date in sight to the current crisis. The pandemic has not stopped the crime either, we can even say that the number of criminal activities has increased. In this article, we want to point out the difference between criminal activity in transport at the beginning of 2019 compared to 2020. The statistics are taken from the international database of criminal activities processed by TAPA EMEA.

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THE DRIVERS AND BARRIERS OF GREEN SUPPLY CHAIN MANAGEMENT IMPLEMENTATION: A REVIEW

(pages 123-132)

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Keywords: green supply chain management, drivers, barriers, literature review

Abstract: Due to environmental degradation such as climate change, increased CO₂ and GHG emission and all other problems threatening the world and its existence. Firms now are forced to think about integrating environmental thinking into their business operations in order to satisfy their stakeholders. Therefore, several organizations start developing environmental management strategies such as green practices overall their business operations, and since the supply chain concerns the product from its initial processing of raw material until the delivery to the customer there has been an emergency to integrate environmental thinking within this function. This paper aims to review the literature on the drivers and barriers influencing GSCM implementation. A total of 60 elements that englobe 28 drivers, and 32 barriers were identified from the selected literature where only the highest weightage factors are discussed. As results, Financial and cost related factors, Customers and Regulatory related factors seemed to behave simultaneously in both directions.

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POSSIBILITIES OF USING AUGMENTED REALITY IN WAREHOUSE MANAGEMENT: A STUDY

(pages 133-139)

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Keywords: warehouse management, augmented reality, Pick-by-Vision system, smart glasses

Abstract: The presented manuscript points to the possibilities of implementing Smart glasses in warehouse management. With the introduction of augmented reality (AR), it is possible to speed up warehouse employees' processes must ensure significantly. The first part of the article deals with the issue of augmented reality and the object sensing system. The second part is focused on the possibilities of AR in warehouse management to increase productivity. The main part of the study focuses on comparing four systems that operate in distribution centres. The study evaluated and described the benefits of their implementation. Overall, the findings show that the performance of Smart technologies focusing on augmented reality is becoming a novelty in warehousing with significant services for businesses. AR is also pointed out by implementing Industry 4.0 ideas in the concept of creating digital twins of manufacturing companies, which is a current trend.

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MODELLING OF FINANCIAL RESOURCE ALLOCATION FOR INCREASING THE SUPPLY CHAIN RESILIENCE USING MARKOV CHAINS

(pages 141-151)

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Keywords: supply chain resilience, resource allocation, modelling, Markov chains

Abstract: The concept of supply chain resilience has arisen in response to changing conditions in the global market environment. Although supply chain resilience building is gaining increasing interest among the professional public and business practice, supporting decision-making in supply chain resilience building is still in its infancy. This article aims to present a mathematical model of the supply chain based on Markov chains to assess the impact of funds allocated to strengthening the supply chain's resilience to its overall performance and thus support decision-making in the field. Mathematical model assumptions are presented, then a mathematical model of a linear supply chain is developed and generalized, tested and methodological recommendations are presented. To support the use of the model, a set of managerial implications is presented, benefits and limitations are discussed, and further research direction is defined.

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RAPID RESPONSE CENTERS FOR DISASTERS IN MEXICO: A THEORETICAL STUDY

(pages 153-164)

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Keywords: disaster operations management, immediate response, aerial operations, humanitarian logistics

Abstract: After a disaster, reaction speed becomes one of the most important elements. To act in the best possible way, Disaster Operations Management must have the most accurate information on the affected area. To aid in these moments, a network of centers for Rapid Response is proposed here. Those centers would be equipped with short takeoff and landing aircraft, and would send them as soon as possible to the affected area, to gather information, and bring some type of aid. This research focuses on the theoretical foundation for such centers, including objectives, locations, missions, and equipment. This foundation is obtained through a literature review, which helps find the need for rapid response, and the main objectives and missions to be carried out. The number of centers and their locations are found by the use of a facility location model, considering the risk of each location. Finally, the number and type of aircraft needed in each center, as well as the missions for each one are found by the use of an assignment model. This research was made with the southeastern region of Mexico as its objective, but the resulting network of Rapid Response Centers could be setup in some other areas of the world.

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RAIL DELIVERIES OF BULK OIL CARGOES FROM THE CASPIAN REGION TO EUROPE

(pages 165-173)

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Keywords: Caspian region, Europe, rail transportation, crude oil, refined products

Abstract: This article is a study of the current situation with rail deliveries of bulk oil cargoes from the Caspian region to Europe. It addresses the importance of these deliveries for the European energy security, the salient features of rail transportation of crude oil and refined products in this direction, the main transportation routes, and, finally, describes existing and potential problems with rail deliveries of bulk oil cargoes from the Caspian region to Europe and suggests potential resolutions for these problems. In spite of the serious importance of the topic, the overall number of scientific publications related to it is limited. Another problem is that existing scientific literature sources tend to cover general transportation or geopolitical aspects without paying due attention to the rail transportation, logistical problems, related to the current topic, and how to resolve them. The author attempts to fill these knowledge gaps by collecting, processing, and analysing first-hand information from the main market players. The author concludes the article emphasising the importance of the railway transport for deliveries of bulk oil cargoes and pointing out that several important actions are required, namely the actual introduction of a competitive freight market and transition from transport to logistics corridors, support from governments and railway administrations and proactive position of shippers.

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MARKETING AND LOGISTICS: FEATURES OF FUNCTIONING DURING THE PANDEMIC

(pages 175-187)

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Keywords: marketing, logistics, concept, management, pandemic

Abstract: The need to revise existing approaches and business strategies in logistics was identified in connection with global imbalances in the world economy against the background of the fight against the COVID-19 pandemic. The theory of the organization of marketing activities is considered, a critical analysis is carried out in order to determine the main components of the interaction between marketing and logistics. The lack of a unified approach to organizing effective marketing activities and its interaction with logistics during the COVID-19 pandemic is emphasized. The main components of the marketing concept of doing business have been substantiated. The functional areas of interaction between marketing and logistics in the world during the COVID-19 pandemic have been determined. The classification of the key factors that influenced the transformation of logistics activities in the world has been substantiated. Structural and logical analysis revealed the main trends in the development of the logistics industry in the world. The main tools of scenario economic and mathematical modelling are used to determine the features of the functioning of marketing and logistics during the COVID-19 pandemic and to determine the main trends in their development and interaction. Unlike existing approaches, the proposed one takes into account all the critical influencing factors in the context of COVID-19 and allows you to determine the prospects for the next few years. The main results of the research can be applied in the practical activities of organizations in the formation of development strategies and marketing concepts.

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ANALYSIS OF LOGISTIC PROVISION OF REVISIONS FOR CENTRAL STATE ADMINISTRATION BODIES

(pages 189-197)

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Keywords: information system, technical equipment, supplier, innovations, logistics, management

ABSTRACTS

Abstract: The implementation of information system modules in the conditions of state administration requires extensive project solutions. It differs from the implementation in the enterprise environment mainly by the nature of meeting the legislative conditions. Each implementation project is individual, and when designing its creation, it is necessary to take into account the content of an individual organizational components of the Ministry of the Interior of the Slovak Republic. This contribution aims to define the basic communication requirements that are placed on the information system for the operation of reserved technical equipment in the conditions of the Ministry of the Interior of the Slovak Republic. Knowledge of these requirements will allow setting the functionality of the information system for the operation of reserved technical equipment. The findings of the article and their application will save 20 - 40% of the total time, which will be appropriate to use to save on human resources or improve the activities of individual employees in the field of BOZP (occupational safety and health), operation of buildings, labour inspection. With proper predictive maintenance, the goal of reducing costs by 20% for individual more complex repairs, which are caused by neglect or omission of regular service, can be achieved. The application of research findings will have an impact on the reduction of accidents, accidents with long-term consequences or deaths caused by improper operation of technical equipment. The findings are appropriate to apply to employers with a number of facilities greater than 20.
