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**ABSTRACTS**

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*doi:10.22306/al.v9i4.326**Received: 12 July 2022; Revised: 12 Sep. 2022; Accepted: 07 Dec. 2022***METHODOLOGY FOR CALCULATING THE COST PRICE  
OF THE BENDING PROCESS FOR THE NEEDS  
OF MANUFACTURING LOGISTICS**

(pages 361-368)

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Ostrava-Poruba, Czech Republic, EU, tomas.pala@vsb.cz**Keywords:** press brake, logistic process, bending, bid calculation, cost price.**Abstract:** The research of this paper aims to characterize and describe the methodological sequence of operations necessary for the correct calculation of the cost price when performing a bid calculation in the bending process step on a bending machine. The research focuses on determining the methodology and its application exclusively to sheet metal parts in the engineering industry in the processing of steel and stainless-steel sheets. To research this issue, we used empirical and quantitative research in a real work environment. The methodology for calculating the cost price of bending sheet metal parts yields the relationships between component inputs, the result of which is a time parameter that is expressed by the actual production costs. The results can be used in the real working environment of manufacturing companies for comparison with already established practices and a verification of their outputs. At the same time, it is possible to use the determined methodological procedure as a basis for implementation in the Aurendi web application.*doi:10.22306/al.v9i4.327**Received: 13 July 2022; Revised: 25 Oct. 2022; Accepted: 15 Nov. 2022***OPERATIONAL CONCEPT OF AN INNOVATIVE PACKAGING  
MANAGEMENT SYSTEM**

(pages 369-378)

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Egyetemváros, Hungary, EU, alttpeti@uni-miskolc.hu**Keywords:** packaging management, simulation study, decision method, industry 4.0.

**Abstract:** Nowadays choosing the right packaging system is becoming increasingly challenging, mainly due to the pressure to meet dynamically changing customer needs. In order to remain competitive, the types of unit loads handled by companies are changing more and more frequently, which means that the choice of the ideal packaging system is also becoming increasingly important. The packaging of products influences the efficiency of logistics operations and the cost of running the system, whose role is becoming increasingly important. As a result of the detailed literature analysis presented here, it is concluded that no framework has been developed to date that provides an adequate answer to the choice of the optimal packaging system in different circumstances. The methods used in practice focus on a few narrow areas and ignore many relevant aspects. In this paper, we present the testing options for the packaging management system we have developed, the building blocks of the system and their role in the testing process. In addition, the basic process of one type of testing, namely the selection of the optimal packaging system for a new product type, is described.

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## THE CURRENT STATUS OF EAST SLOVAKIAN TRANSHIPMENT POINTS AND THE POSSIBILITIES OF THEIR FURTHER DEVELOPMENT

(pages 379-386)

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**Keywords:** railway transport, transshipment point, gauge.

**Abstract:** The article discusses the possibilities of East Slovakian transshipment facilities, which, despite their relatively strategic location and the possibilities they provide, are far from being used as much as their capacities allow. Growing requirements for green transport and reducing the carbon footprint create space for increasing rail transport as the most ecological option; on the other hand, the long-standing problems experienced by East Slovakian transshipment points put them in a competitive disadvantageous position compared to other countries. The opening of the Silk Road provides opportunities that East Slovakian transshipment points do not use or use very little. Therefore, the article points out the weaknesses of East Slovakian transshipment centres and looks for ways to improve the current situation, it also draws attention to the possibilities of East Slovakian transshipment centres, especially Čierna nad Tisou, and makes suggestions for rationalization. The findings of the article point to the fact that Eastern Slovakian transshipment facilities have a potential that needs to be further developed, which, however, will probably not be possible without state aid.

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## THE LAST MILE DELIVERY PROBLEM: A KENYAN RETAIL PERSPECTIVE

(pages 387-395)

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**Keywords:** delivery challenge, online retail, e-commerce.

**Abstract:** The article aims to determine the last mile delivery challenges faced by online retailers in Kenya. This is based on the online retailing sub-sector's contribution to the country's economy. Despite its significant contribution to the country's economy, little is known about the challenges facing online retailers during last mile delivery. In other countries such as China and South Africa, that are doing better in online retailing, extensive research has been done to determine

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unique challenges facing their online retailers during last mile delivery. It is important for the online retailers and relevant government agencies in Kenya to understand the last mile delivery factors that hinder the growth e-commerce. A qualitative research design using face-to-face interviews was used to collect data from seven online retail managers in Nairobi. The findings revealed there are a variety of last mile delivery challenges facing online retailers. These include the lack of a good national addressing system, traffic concerns, security concerns, high cost of delivery, postal service unreliability, and uncondutive county government by-laws. The lack of a good national addressing system was found to be the most common last mile delivery challenge facing online retailers in Nairobi. It is recommended that retailers request their customers to share location details via online map applications such as Google Maps to overcome this challenge. The use of other delivery options, such as customer pick-up points of convenience can also be considered.

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## **PROMOTING CORPORATE ENTREPRENEURSHIP THROUGH ELECTRONIC HUMAN RESOURCES MANAGEMENT PRACTICES: AN EMPIRICAL STUDY**

(pages 397-404)

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**Keywords:** corporate entrepreneurship, electronic human resources management practices.

**Abstract:** The current study aims to provide an overview of the role of electronic human resources management practices (E-HRM) in corporate entrepreneurship (CE) in telecommunication corporations in the Duhok governorate-Kurdistan region to progress their entrepreneurial capacities through implementing E-HRM systems. The study sample was made up of 5 telecom companies. The structured questionnaire designed by the researchers was used to collect primary data, totalling 32 respondents. Data analysis was performed by different statistical methods through SPSS program. The results of the study reveal that the correlation coefficient between the variables of the study is 0.775 (Total index). This shows a positive relationship between E-HRM and Corporate Entrepreneurship, supporting the validity of the first main hypothesis of the study. The results also indicate that E-HRM practices have a significant positive effect on Corporate Entrepreneurship due to the calculated F value (45.184) is higher than its tabular value (4.17). Accordingly, the second research hypothesis has been accepted.

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## **EXOSKELETONS - ROBOTIC SUITS IMPROVING WORK IN LOGISTICS**

(pages 405-410)

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**Keywords:** exoskeleton, logistics, supply, distribution, technology.

**Abstract:** Logistics, in the future, will be a decisive factor in the competitive struggle between organizations, economic regions and countries for value creation. The level of competence in logistics primarily determines success in this struggle.

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For modern companies, supply, production and distribution issues are becoming more and more relevant. It is possible to improve this process by strengthening logistic integration and coordinated interaction with external partners and between different departments within the company. Today, with the high development of technologies, it has become possible to automate not only production processes but also the movements of a person who, for one reason or another, cannot perform usual functions, in particular, to restore or replace partially or completely human limbs. This article deals with the issue of reducing logistics workers' workload. We are talking about the development of a robotic platform, namely exoskeletons, which are designed to supplement lost functions, increase human muscle strength and expand their physical capabilities, which will significantly increase the degree of worker efficiency. This article aims to optimize and facilitate workers' work by explaining the use of exoskeletons in supply and distribution logistics.

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## SELECTED INNOVATIVE APPROACHES IN THE WASTE TYRES MANAGEMENT

(pages 411-415)

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**Keywords:** waste tyres, monitoring, recycling, circular economy.

**Abstract:** Nowadays, waste is something that every country can handle in terms of disposing of it, storing it, or reusing it. However, waste is not only municipal waste but also other raw materials that wear out over time, and their primary purpose in life is over. The ideal case for such waste is its recycling and reuse in other forms. Preventing waste is the best way to recycle, but its life cycle needs to be addressed if waste is produced. The economic model of the current society is primarily linear so far. We extract natural resources and take them to the other side of the world, where products are made from them. These are distributed to other corners of the world, where consumers buy, use and throw them away. This is how waste is created and raw materials in the form of products end up in landfills, incinerators, or thrown in the wild. However, according to the institute, the circular model should, in addition to a stable economy, also ensure a healthy environment. This specific area of waste is under-discussed across society compared to plastics, where more emphasis is placed on recycling and reuse. The presented manuscript concerns the worst kind of waste, namely end-of-life tyres. Despite this, there are companies in Slovakia that are looking for innovative ways to evaluate this type of waste and are dedicated to traditional recycling methods. The number of fast-paced used tyres is increasing nowadays, which also adapts to the lifestyle of everyday life.

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## ANALYSIS OF THE IMPACT OF TRADE OPENNESS ON ECONOMIC GROWTH: THE CASE OF MOROCCO

(pages 417-431)

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**Keywords:** trade openness, economic growth, Morocco, ARDL model, causality.

**Abstract:** The relationship between openness to international trade and economic growth has been a subject of perennial controversy. This has paved the way for various theoretical and empirical investigations which has yielded inconclusive results, particularly in the case of developing countries. As a good case in point, the Moroccan economy has been subjected to a thorough analysis in order to determine and evaluate the impact of trade openness on economic growth covering the period from 1980 to 2019. To this end, the methodology adopted consists of a complementary approach of statistical and econometric tests using the ARDL bounds test of cointegration and the Toda-Yamamoto causality test. The results have shown that Morocco's openness to international trade positively impacts economic growth in the short term. Yet, it produces adverse effects in the long term, especially with the presence of bidirectional causal relationship between the two variables— i.e economic growth and international trade.

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## MODELLING AS A TOOL OF MAKING THE COMPANY'S LOGISTICS MORE EFFICIENT

(pages 433-440)

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**Keywords:** modelling, layout, design, manufacture, logistics.

**Abstract:** The subject of this article was connected with the problem of finding an effective layout of manufacturing mechanisms in a particular manufacturing hall in DELTA Company, where we were part of a project team. The project team's goal was to solve the problem associated with the actual layout with the help of modelling and designing. It was necessary to analyse the actual layout and also opinions and possibilities of changes in this particular manufacturing mechanism. It is the manufacturing hall. For the analysis of the actual layout, we decided to work with different analytical methods because there were a lot of elements in this manufacturing system which have their own characteristics that are also connected itself or with others. It was necessary to look at all of these characteristics and their connections, and the result will be based on a prime scheme model of design variations for finding an effective layout of manufacturing mechanisms for a particular hall in DELTA Company.

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## SUPPLY CHAIN RISK MANAGEMENT IN DAIRY INDUSTRY OF THE CZECH REPUBLIC

(pages 441-448)

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**Keywords:** agri food chain, dairy industry, management, logistic, risk.

**Abstract:** Food production is one of the key sectors of the food industry in the Czech Republic and the European Union. Its direct link to the primary agricultural sector is also crucial, from which it takes inputs, which it further processes and markets. A necessary condition for this process is the quality and safety of the commodity produced. The businesses must demonstrate food quality and safety through an effective system of traceability and traceability of these criteria. These conditions significantly affect aspects of production and logistics. The paper is focused on the dairy industry. This industry forms an essential part of the entire agri-food chain. Processes in enterprises of this type are specified in that several regulations affect production and logistics operations. Raw materials and products are perishable. On the other hand, the customer expects a quality and safe product at the right time. The paper's main aim was the identification of risks in individual phases of the dairy industry logistics processes. The area of purchasing, production, and the transport was examined in particular. The secondary aim was to expand theoretical knowledge of dairy management. Expert studies and scientific articles in this area are insufficient.

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## QUALITY COST FLOWS IN MANUFACTURING COMPANIES

(pages 449-456)

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**Keywords:** quality management, cost, cost of quality, PAF model.

**Abstract:** Companies have increasingly focused their attention on quality costs. Therefore, raising awareness of this group of expenses is essential. This paper aims to present a survey on the topic of costs of quality management in manufacturing companies in the Czech Republic. This paper opens with a literature review that focuses on the existing cost of quality models and then focuses on empirical research results. Manufacturing companies represent the framework of this research. The research with a total of 159 respondents provides information about the real market situation. The aim was to determine the significance of costs and cost-effectiveness. The study's findings revealed that 73% of organizations quantify their quality costs completely, 21% of companies quantify their costs only partly (external costs), and 6% of companies do not. 36% of surveyed companies (42 companies) that monitor quality costs use some of the recommended models, mainly the PAF model. The research was confirmed by hypothesis 1 that companies that use some type of evidence cost of quality have lower levels of these costs.

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## POTENTIAL OF SMOKED FISH INDUSTRIAL CLUSTER IN THE ISLANDS AREAS

(pages 457-466)

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**Keywords:** industrial cluster, smoked fish and fishery potential.

**Abstract:** Potential utilization of owned natural resources is the advantage of each region as an industrial competitiveness strategy. Moreover, each existing industry can be grouped (clustered) according to the characteristics of the industry which in turn can support regional economic growth and improve the welfare of its people. This study seeks to map of potential of smoked fish industrial cluster product in the archipelago by focusing on the Ambon Island area. The results showed that, there were 78 smoked fish industries that formed 6 (six) groups of smoked fish industry agglomerations in the Ambon Island region with an average distance between point (industrial) with its closest point is 0.208 km. A total of 78.79% or 78 points (industry) has a distance to their nearest industry which is less than the average distance. The Average Nearest Neighbour Analysis using ArcGis 10.5, found that the distribution of the fishery processing industry in the Ambon Island region has a ratio of 0.203416 with a Z-score of -15.008879 and a significance of 0.000. This ratio is within the parameters that indicate a spatial clustered pattern, which means that the distribution of smoked fish industry on Ambon Island is identified as having the potential to develop into industrial clusters.

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## SELECTING SUSTAINABILITY KEY PERFORMANCE INDICATORS FOR SMART LOGISTICS ASSESSMENT

(pages 467-478)

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**Keywords:** smart logistics, sustainability, key performance indicators, industrial enterprise, supply chain.

**Abstract:** The application of smart technologies and applications is becoming increasingly common in the logistics processes of companies and supply chains. However, standard logistics indicators are still used to evaluate their performance, which contradicts the sustainable development strategy of many industrial enterprises and their supply chains. Thus, the article aims to design a methodology for selecting sustainability key performance indicators (SKPIs) suitable for assessing smart logistics and its technologies and applications. The research relies on cluster analysis of the SKPIs recommended in the relevant literature, frequency analysis of indicators used in practice and their comparison. The cluster analysis showed that the primary attention in the references is given to sustainability's economic and environmental dimensions. Most frequently, the authors highlighted the importance of the following indicators: production-related costs and investments, planning performance and quality, customer satisfaction, energy efficiency, waste intensity and treatment, emissions, and resource efficiency. On the contrary, the frequency analysis corroborated

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that leading industrial enterprises paid more-or-less balanced attention to all areas of sustainability, but at the company level. The article's primary result constitutes a methodology comprising six steps, respecting the results of the analyses carried out: (1) Sustainability objectives definition; (2) Establishing SKPIs cluster pool; (3) Definition of criteria for selecting SKPIs clusters; (4) Selection of SKPIs clusters; (5) Definition of SKPIs and their parameters; and (6) Development of SKPIs hierarchical structure.

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## THE RELATIONSHIP OF INNOVATION AND THE PERFORMANCE OF BUSINESS LOGISTICS IN THE EU

(pages 479-485)

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**Keywords:** innovation, business logistics performance, correlation analysis, cluster analysis.

**Abstract:** At present, innovations have a significant impact on the success of the company on the market, and in the case of their correct implementation, they represent a competitive advantage for the company, which significantly differentiates it from the competition. At the same time, we can perceive them as an essential part of business, as the market, consumers and their preferences change dynamically, and through innovations the company can respond more flexibly to these changes and thus gain an advantage over its competition. The paper is dealing with the issue of innovation and business logistics performance in the EU. To examine the relationship between innovation and business logistics performance, we used data on the Innovation Index and the Logistics Performance Index in individual EU countries. The correlation analysis was applied to assess the closeness of the statistical dependence among the investigated variables, and subsequently we applied cluster analysis to decompose the basic set of investigated objects into several relatively homogeneous subsets - clusters. The results confirm the dependence between innovation and business logistics performance in EU countries. Regarding the results of the analysis, we can state that countries with the greatest business logistics and innovation performance tend to form geographically close clusters, and this decreases with increasing geographical distance from more efficient countries.

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## SUSTAINABLE SUPPLY CHAIN MANAGEMENT IN THE MEAT INDUSTRY IN POLAND

(pages 487-499)

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**Keywords:** sustainable, supply chain, management.

**Abstract:** Every type of business is closely related to the flow processes of various types of goods. The flow process begins at the source of raw materials until it reaches the final customer. A corollary to the newly emerging challenges of both social and environmental management of increasingly complex supply chains is the issue of sustainable supply chain management. The meat industry, along with its entire supply chain, is subject to cyclical crises, with different foundations and negative effects on individual links. One of the reasons for the crises in the meat industry is the management of supply chains based primarily on economic objectives to the exclusion of social and environmental aspects. The purpose of the

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article is to assess the level of sustainable supply chain management in the meat industry. The research problem is to determine the involvement of meat industry companies in the various dimensions of sustainability: economic, social and environmental. Therefore, a special online survey questionnaire was created, where potential respondents representing 93 meat companies were identified and purposely selected. After receiving and verifying the completed questionnaires, 85 completely completed questionnaires were qualified for further analysis and a coding process was carried out using Excel software, then the data was imported into Statistica statistical software, where the main statistical analyses were carried out.

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