ABSTRACTS

https://doi.org/10.22306/al.v11i4.443 *Received: 24 June 2023; Revised: 17 Nov. 2024; Accepted: 30 Nov. 2024*

Intellectual capital meets Industry 4.0: transforming logistics through bibliometric insights

(peges 505-516)

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Keywords: intellectual capital, intangible assets, Industry 4.0, logistics.
Abstract: This study conducts a comprehensive bibliometric analysis to explore the evolving relationship between intellectual capital and Industry 4.0 within the logistics sector. The research identifies trends, key contributors, and thematic developments in this interdisciplinary field using data from two leading scientific databases, Web of Science and Scopus. The primary objective is to understand the critical areas of intellectual capital—human, structural, and relational—and their application in Logistics 4.0, driven by technological innovations such as cyber-physical systems and digital transformation. The methodology employs established bibliometric techniques, including co-occurrence and thematic mapping, to evaluate research questions addressing publication trends, country contributions, source relevance, and author influence. Data from 2001–2024 for Web of Science and Scopus datasets reveal key insights: consistent publication growth, leading contributions by countries like China and the USA, and the emergence of themes such as sustainability, innovation, and digital transformation. Comparative analysis highlights differences in keyword trends and collaborative networks between databases, with Scopus displaying a notable time lag in topic evolution. Findings emphasise the pivotal role of intellectual capital in driving logistics innovation, underscoring its integration with Industry 4.0 technologies. Limitations include potential database biases and a data lag for 2024. This study is a foundational reference for scholars and practitioners who leverage intellectual capital for competitive advantage in the digitised logistics era.

https://doi.org/10.22306/al.v11i4.534 *Received: 27 Jan. 2024; Revised: 11 June 2024; Accepted: 01 Oct. 2024*

Towards efficient logistics through suitable negotiation strategies: the role of uncertainty

(pages 517-526)

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Keywords: suppliers, negotiation, uncertainty, SMAA, AHP.
Abstract: Uncertainty is a factor that affects many decision-making situations in practice. Supplier management and its flows in companies is no exception. This paper focusses on the choice of the most appropriate strategy towards suppliers in a company. This topic is unfairly neglected in the literature compared to other decisions related to suppliers, such as supplier selection or evaluation. For the sake of robustness, two different hybrid methods of multicriteria decision making, allowing managers to capture the uncertainty, are applied and compared. Namely, the AHP method together with Stochastic Multicriteria Acceptability Analysis (SMAA), and the fuzzy extension of the PROMETHEE method. The goal of this paper is twofold. First, the best strategy is explored with respect to time and uncertainty before the nomination of a supplier is done and after that. Second, it is pointed out how much oversimplifying and distorting the aggregation of opinions using the averaging operator can be. The results showed that examining individual evaluations helps better understand the impact of the uncertainty on the most suitable strategies towards suppliers, in comparison with the final ranking based on averaging individual opinions. The performed survey revealed that choosing the best strategy before nominating a supplier is more difficult than doing so after the nomination.

https://doi.org/10.22306/al.v11i4.535 *Received: 28 Jan. 2024; Revised: 22 May 2024; Accepted: 05 Aug. 2024*

Recognition of sustainable packaging by consumers of household chemicals

(pages 527-536)

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Keywords: sustainability, sustainable packaging, sustainable packaging indicator, consumer recognition, household chemicals.
Abstract: The growing interest of companies in sustainability affects various areas of logistic activities, including packaging. There is a clear tendency among industrial companies to enhance the sustainability of packaging for their products. In doing so, companies contribute not only to the environmental behaviour of society but also to its overall well-being. However, for ultimate success in both business and society, it is important that consumers can recognise and appreciate these packaging efforts. The paper addresses the challenge of identifying sustainable packaging from the perspective of consumers, particularly in relation to the purchase of household chemicals such as detergents and cosmetics. Based on the literature review and focus group discussion, the paper reveals packaging indicators that enable consumers to identify sustainable packaging. A subsequent questionnaire survey involving 400 Czech consumers defines the relative importance of these indicators. Through exploratory factor analysis, the paper identifies six main factors in recognising sustainable packaging, namely graphic design, amount of material, type of material, brand, labelling, and reusability. Furthermore, the paper reveals differences in the perception of sustainable packaging based on the socio-demographic characteristics of consumers. Reusability, type of material, and labelling emerge as the most significant factors in packaging recognition within the Czech consumer market for household chemicals. While the impact of labelling and type of material factors varies depending on the education, age, and environmental inclination of consumers, the reusability factor equally influences all Czech consumers, regardless of gender, age, education, or lifestyle.

ABSTRACTS

https://doi.org/10.22306/al.v11i4.538 *Received: 29 Jan. 2024; Revised: 07 June 2024; Accepted: 25 July 2024*

Logistic-information system based on object-oriented approach

(pages 537-547)

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Keywords: logistics, information, system.
Abstract: The article deals with the issue of creating an information system through an object-oriented approach, which is suitable for ensuring an efficient and properly functioning logistics network. An object-oriented approach to the creation of a business information system pays attention to a set of cooperating objects and reacts more flexibly to events in the environment. The main effort within the object-oriented approach is the reuse of created objects for a new system, which significantly contributes to shortening the development of new systems. For this fact and based on practical experience, the mentioned approach was chosen by the authors of the article. The overall design and functionality of the information system were influenced by the strategic direction of the company, which was also necessary to consider when preparing the article. In the end, a comparison of specific and object-oriented approaches to the creation of information systems for the company is processed.

https://doi.org/10.22306/al.v11i4.539 *Received: 30 Jan. 2024; Revised: 18 June 2024; Accepted: 30 July 2024*

Logistics impact on business management and firm competitiveness – 15 years of experience

(pages 549-557)

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Keywords: logistics, logistics concept, business management, competitive advantage, firm competitiveness.
Abstract: Logistics plays a very significant role in contemporary management. The aim of the article is to present the results of the research regarding the impact of logistics on business management and the overall firm competitiveness. The research started in 2009 and was conducted in the Chair of Logistics and Strategic Management at University of Opole, Poland, EU. The most important research findings show that logistics concept, logistics capacities (i.e. logistics resources, logistics capabilities, logistics competences) and logistics strategies have significant impact on business management and the overall firm competitiveness. The most distinctive characteristic of firm competitiveness is its competitive advantage. The pillars of the firm competitive advantage creation as well as the overall firm competitiveness building and strengthening are the market outcomes as well as economic outcomes achieved by the firm. Thanks to these outcomes firms are able to reach the desired financial performance and market position compared to the competitors. The research results were presented based on two projects named: (1) Logistics Determinants of Business Management, carried out in the Chair of Logistics and Strategic Management in years 2009-2011, and (2) Logistics Competences Affecting Business Competitive Advantage Creation, carried out in this chair in years 2012-2014. Several detailed issues, in particular the impact of logistics resources as well as logistics capabilities on business management as well as the overall firm competitiveness, have been the topic of the further, in-depth research carried out in the abovementioned chair in the next years.

ABSTRACTS

https://doi.org/10.22306/al.v11i4.544 *Received: 05 Feb. 2024; Revised: 26 Mar. 2024; Accepted: 16 May 2024*

An innovative decision-making method for choosing a bus fleet based on logistics and sustainability aspects

(pages 559-568)

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Keywords: battery degradation, decision-making method, sustainability, public transportation.
Abstract: The widespread adoption of electric vehicles (EVs) has played a significant role due to their much smaller carbon footprint compared to their internal combustion engine counterparts. This trend also applies to public transportation in Hungary, where battery electric buses (BEBs) are gradually being incorporated into the fleets of major passenger transport operators. In assessing the total cost of ownership (TCO) of these vehicles, factors such as the expected daily mileage, the current price, capacity, lifecycle, and degradation of the integrated drive train batteries—typically lithium-ion based—play a significant role. This is also considered, if the batteries' second life and reuse can significantly improve the TCO value. Based on the examination of domestic and international literature, it can be established that the selection of the appropriate vehicle fleet exclusively considers the TCO value, which disregards neither the significant benefits arising from the batteries' secondary life cycle, nor considering various quality indicators. This deficiency in fleet selection could result incorrect decisions. In our opinion, the consideration of both logistical and sustainability aspects is indispensable in the decision-making process. To prove this, the paper presents an innovative decision-making method developed by us, which considers the effects of battery degradation related to the secondary life cycle and key quality indicators when selecting the ideal fleet meeting the expected mileage performance. To validate the theoretical background, a case study was also prepared, which is included in the paper. The article also contains considerations related to the topic by Volánbusz Zrt.

https://doi.org/10.22306/al.v11i4.547 *Received: 17 Feb. 2024; Revised: 11 June 2024; Accepted: 17 Oct. 2024*

Effects of material master data management on supply chain performance at FLSmidth: the moderating role of PiLog external service provider

(pages 569-578)

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ABSTRACTS

Keywords: supply chain performance, logistics, service provider, material master data management, moderating role.
Abstract: In the dynamic landscape of industrial operations, the effective management of material master data within the supply chain is paramount for organizational success. This study investigates the challenges and solutions associated with Material Master Data Management (MMDM) at FLSmidth (FLS), a leading supplier in the cement and mining sectors. FLS operates within a complex and diverse supply chain environment, serving global clientele across various sectors. The study aims to understand the impact of MMDM implementation on supply chain performance at FLS, specifically focusing on performance metrics such as inventory turnover, order fulfillment accuracy, and lead time reduction. The moderating role of PiLog, an External Service Provider (ESP), is explored in this context. Employing a mono-qualitative approach, the study delves into MMDM implementation through in-depth interviews with 18 FLS employees and 4 PiLog customers. Thematic analysis reveals that well-implemented MMDM systems enhance visibility, planning, and inventory management, leading to improvements in supply chain performance. Challenges in stakeholder persuasion and infrastructure access are identified as common implementation hurdles. PiLog emerges as a crucial moderator, providing structured frameworks, emphasizing standardization, and addressing governance challenges. The findings underscore the importance of strategic partnerships between organizations and ESPs in successfully implementing and sustaining MMDM initiatives. Recommendations include strategies for overcoming infrastructure challenges, leveraging ESP expertise, and aligning with best practices in standardization and governance. This study contributes to the academic discourse on MMDM implementation and offers practical insights for organizations seeking to enhance supply chain performance through meticulous MMDM practices.

https://doi.org/10.22306/al.v11i4.548 *Received: 20 Feb. 2024; Revised: 09 June 2024; Accepted: 05 Aug. 2024*

Enhancing reliability in garment manufacturing through FMEA and FTA

(pages 579-587)

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Keywords: Failure Mode and Effect Analysis (FMEA), Fault Tree Analysis (FTA), clothing production, manufacturing processes, product defects.
Abstract: This study employs Failure Mode and Effect Analysis (FMEA) and Fault Tree Analysis (FTA) to comprehensively investigate product defects in Biyan Konveksi's manufacturing processes, one of the growing SMEs producing clothing pieces. Analyzing critical failure modes, including tear failures, stitching irregularities, sizing discrepancies, and ribbon imperfections, the research employs FTA to trace root causes, revealing the interconnected nature of these failures. The initial defect percentage, attributed to human, machine, material, and environmental factors, stood above 3%, with culottes experiencing the highest defect percentage at 3.95%. After the company implemented the enhancement measures, the defect percentage dropped significantly, reaching a range of 1 to 1.25%. Subsequently, targeted enhancement strategies are proposed, encompassing the implementation of additional worker rest breaks to alleviate fatigue, comprehensive training for new staff, and stringent machine maintenance protocols. These interventions aim to curtail tear failures, refine stitching precision, rectify sizing errors, and enhance ribbon placement. Anticipated to yield a substantial reduction in overall defect percentages, the suggested improvements position Biyan Konveksi for sustained excellence, emphasizing proactive measures to enhance worker performance and optimize manufacturing processes. The study underscores the significance of a systematic approach, combining FMEA and FTA, in diagnosing and rectifying complex failure scenarios within manufacturing environments, offering practical implications for companies aiming to fortify their competitive edge in the market.

ABSTRACTS

https://doi.org/10.22306/al.v11i4.552 *Received: 23 Feb. 2024; Revised: 25 June 2024; Accepted: 26 July 2024*

Deep learning hybrid models for effective supply chain risk management: mitigating uncertainty while enhancing demand prediction

(pages 589-604)

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Keywords: supply chain, demand prediction, deep learning, hybrid model, supply chain risk management.
Abstract: In today's rapidly evolving business landscape, effective supply chain management (SCM) is crucial for achieving success. Accurately predicting product demand is a significant challenge for companies, impacting customer satisfaction, inventory optimization, cost reduction, and operational efficiency. This study focuses on demand forecasting within intelligent supply chains (SCs) and supply chain risk management (SCRM), aiming to enhance overall SC efficiency and mitigate risks, highlighting the use of deep learning hybrid and singles models to address SCRM challenges, specifically in mitigating uncertainty and improving demand prediction accuracy. Our research paper investigates predictive modeling techniques for demand forecasting within the automotive sector. Specifically, we assess the effectiveness of Seasonal Autoregressive Integrated Moving Average (SARIMA), Long Short-Term Memory (LSTM), Artificial Neural Network (ANN), Recurrent Neural Network (RNN), and a hybrid RNN-ANN model with Gradient Boosting (GB). Through meticulous analysis and evaluation, we demonstrate the superior predictive accuracy of the hybrid model compared to individual models. The results indicate consistent outperformance of the hybrid model, as evidenced by lower Mean Absolute Error (MAE) and Mean Squared Error (MSE) values across electric and thermal product categories. This research aims to provide valuable insights and practical tools for businesses to refine their demand prediction processes. By addressing demand uncertainty, organizations can streamline their SCs, minimize costs, and establish a responsive and adaptable framework for sustainable growth.

https://doi.org/10.22306/al.v11i4.557 *Received: 07 Mar. 2024; Revised: 16 June 2024; Accepted: 05 Aug. 2024*

Reasons, benefits and challenges on the road to automated internal transportation

(pages 605-613)

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Keywords: elements of logistics, intralogistics solutions, automation, AGV, flow of materials.
Abstract: The article discusses the topic of available solutions related to process automation in companies. The focus is on intralogistics solutions, especially in the context of robotization of transport, using the example of automatically controlled vehicles. Industry 5.0, in addition to automation, pays attention to the human factor, stabilization and the environmental aspect, which is a challenge for many companies. Large organizations are automating their processes in an effort to increase flexibility and respond quickly to customer requirements. Wanting to match market requirements will be a particular challenge for small and medium-sized companies. The purpose of this article was to study and describe the case of a manufacturing company that decided to change the means of internal transportation - to automated. The article answers the research questions posed for what reasons companies are interested in intralogistics solutions and what challenges organizations face when implementing such solutions. The paper uses literature analysis and qualitative research in the form of a case study. The benefits to organizations of automating material handling are presented, which can be particularly beneficial information for the small and medium-sized business sector. A qualitative study conducted at a Polish automotive company shows that the implementation of AGV robots has significantly improved the efficiency of internal logistics, reducing the risk of accidents and increasing process systematization. These results confirm the growing interest in automation, which contributes to reducing costs, increasing revenues and meeting environmental requirements.

ABSTRACTS

https://doi.org/10.22306/al.v11i4.559 *Received: 13 Mar. 2024; Revised: 12 Sep. 2024; Accepted: 05 Nov. 2024*

Optimizing ergonomic work facilities in distribution logistics to prevent manual lifting injuries

(pages 615-625)

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Keywords: ergonomic optimization, manual lifting, biomechanical and anthropometric.
Abstract: This study aims to improve ergonomic conditions for box-lifting operators in bottled drinking water companies. Operators handling small packaging sizes (600 ml) report significant pain, as revealed by the Nordic Body Map Questionnaire. Addressing this issue is crucial for preventing manual lifting injuries and ensuring worker safety in logistic distribution. A combination of biomechanical analysis, anthropometric data, and the Nordic Body Map Questionnaire was used to assess operator complaints and evaluate ergonomic hazards. The study utilized Catia software to simulate work facility designs, focusing on the development of an adjustable-height hydraulic pallet to optimize operator posture during lifting tasks. Key metrics included compressive and shear force calculations to evaluate injury risks. Operators reported pain in the shoulders, lower back, buttocks, and thighs over the past year. Initial evaluations showed excessive compressive forces (up to 19,778.2 N) and shear forces (over 500 N), indicating a high risk of injury. After ergonomic interventions, simulations recorded compressive forces of 3,350 N and shear forces of 185.31 N, demonstrating a significant reduction in risk and safe operational conditions. This study offers a novel, comprehensive approach to ergonomic optimization in logistics, combining operator feedback, biomechanical analysis, and technological tools like Catia for facility design. The findings provide a blueprint for improving worker safety and efficiency in manual lifting tasks. The study's outcomes benefit safety engineers, ergonomic specialists, and logistics managers, offering insights into improving worker well-being and operational efficiency. Future research could explore further technological enhancements in facility design and their impact on worker ergonomics.

https://doi.org/10.22306/al.v11i4.560 *Received: 19 Mar. 2024; Revised: 17 July 2024; Accepted: 30 July 2024*

Analysis of marketing distribution efficiency of small pelagic fish on Ambon Island with path analysis

(pages 627-638)

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Keywords: producer price, consumer price, marketing cost, marketing margin, marketing efficiency.
Abstract: This study aims to develop a path analysis of marketing distribution efficiency of small pelagic fish in the islands, particularly on Ambon Island, and investigate its most significant determinant. Producer price, consumer price, marketing cost and marketing margin are examined as determinants of marketing efficiency. An efficient marketing system provides benefits for business actors involved in the production process, so that their products can reach target consumers. A longer marketing chain results in higher marketing costs, which ultimately determines the end consumer price. The data was analysed in a descriptive-quantitative manner, conducting a supply chain analysis and a path analysis to determine the marketing margin and marketing efficiency of small pelagic fish marketing distribution in Ambon City. The results show that all distribution channels are efficient because the calculated efficiency value is <30%. First path analysis producer prices (X1) have no significant effect on marketing margin (Y), consumer prices (X2) have a positive and significant effect on marketing margins (X3); and marketing costs have a significant effect on marketing margin (Y). The second equation, all variables (X1, X2, and X3) have a significant effect on marketing distribution efficiency (Z) through marketing margin (Y). It can be concluded that marketing costs and marketing margins greatly influence the efficiency of marketing distribution. These findings imply that to gain profits, small pelagic fish fishermen (as producers) must estimate marketing costs accurately.

https://doi.org/10.22306/al.v11i4.562 *Received: 28 Mar. 2024; Revised: 25 June 2024; Accepted: 20 Aug. 2024*

Crypto technologies in logistics

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Keywords: crypto technologies, Blockchain, logistics.
Abstract: Crypto technologies present a challenge for the field of logistics, which is associated with the change of stereotypes in the management of logistics processes. It is practically another stage of development connected with a wide range of logistics processes, resulting in the creation of new paradigms that bring increased efficiency and improved process quality. The understanding of crypto technologies is generally associated primarily with cryptocurrencies. However, the presented knowledge is wrong and very misleading. Crypto technologies are not only cryptocurrencies. Crypto technologies, in connection with logistics, represent this field's future direction. This statement is also underlined by the current trend aimed at the development of digitisation. The paper presents the issue of the relationship between crypto-technologies and logistics. The effort will be to point out that crypto technologies are not only Blockchain, but Blockchain is the base on which crypto technologies are built, thus bringing benefits to the field of logistics and supporting its development.

https://doi.org/10.22306/al.v11i4.564 *Received: 04 Apr. 2024; Revised: 24 July 2024; Accepted: 19 Aug. 2024*

The impact of logistics service quality through the perceived organizational image on performance: cold chain logistics provider in Thailand

ABSTRACTS

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Keywords: cold chain logistics, logistics service quality, perceived organizational image, transportation and logistics service provider, performance.
Abstract: The impact of logistics service quality and perceived organizational image on firm performance, are explored using the structural equation modeling analysis for Thailand's cold chain logistics provider. The objectives of this study were to direct, indirect, and total impact of logistics service quality through perceived organizational image on the performance of cold chain logistics providers, assessed by customers receiving services from cold chain logistics service companies. This quantitative research method uses a questionnaire to collect data from 541 respondents. Moreover, the results obtained from logistics service quality have a significant enhancing effect on the perceived organizational image, and both have significant positive effects on performance. Additionally, the role of the perceived organizational image as a mediating variable between logistics service quality and performance is emphasized. Logistics service quality has the most direct significant effect on perceived organizational image. Additionally, corporate image perception significantly mediates the relationship between service quality and logistics efficiency. These findings have contributions, relevant support, and benefits in academic, managerial, and important implications for cold chain providers in Thailand. It empirically demonstrates that the impact of logistics service quality can be supported through the perceived organizational image. This image is built on past experiences, emotions, and perceptions about the organization's reputation and the quality of its logistics services, including management logistic flow.

https://doi.org/10.22306/al.v11i4.565 *Received: 05 Apr. 2024; Revised: 26 July 2024; Accepted: 11 Sep. 2024*

Optimization of strategic management of marketing and logistics of companies as part of the implementation of artificial intelligence

(pages 665-676)

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Keywords: optimization, marketing, logistics, artificial intelligence.
Abstract: The goal of the study is determining the key aspects of optimizing the strategic management of marketing and logistics of modern companies as part of the realization of artificial intelligence technologies. It has been determined that scaling a business and ensuring its profitability is possible by optimizing business processes and management strategies using the implementation of artificial intelligence technologies. The key aspects of automation of marketing and logistics management strategies of companies and their optimization based on the application of artificial intelligence technologies are substantiated. The main trends in the development of artificial intelligence technologies in the global economy are conceptualized. The evolution of artificial intelligence technologies in the world and its impact on the activities of companies is structured with an argument for the main directions and tools. It has been proven that the application of artificial intelligence into the marketing and logistics strategies of companies determines their transformational development and maximum optimization. To determine the key aspects of optimizing the strategic management of marketing and logistics of companies under the influence of artificial intelligence, multifactor correlation and regression analysis tools were used. The correlation between key indicators of marketing (sales volumes) and logistics (logistics efficiency index), their close relationship and an assessment of the impact of artificial intelligence technologies on the transformation of management strategies of modern companies has been determined. Theoretical and scientific-practical recommendations have been formed that are complete and reliable and can be applied in practice when optimizing the marketing and logistics management strategy companies.

https://doi.org/10.22306/al.v11i4.566 *Received: 08 Apr. 2024; Revised: 06 July 2024; Accepted: 03 Dec. 2024*

Working from abroad - workation as a mobility flow benefit

(pages 677-685)

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Keywords: Austria, e-working, mobility flow, workation, working method.
Abstract: This paper explores the status quo of the concept workation in Austria among business executives. The objective of this quantitative study is to gain an understanding of this dislocated work form. The following research questions were set to find answers to: 1) What is the status quo of the workation in Austria in times of multiple crises? and 2) Will the workation help employers to retain their workforce? Based on the data, for managers workation means recharging one's batteries and at the same time working productively and efficiently. Additionally, this survey illustrates a possible way that organisations can retain the talent on their teams. Organisations offering workations accept that their managers and workforce will be out of the office for a while. Most managers stay away for less than a week. Three reasons given by managers to explain why the workation is a success are: 1) an increase in job satisfaction, 2) an increase in productivity and 3) improved work-life balance. We tested our hypotheses in a survey study of 178 respondents in Austria. H1.4, H2 and H3 were supported. The paper concludes with a discussion of whether workations will continue to be important for employers and employees in the future.

ABSTRACTS

https://doi.org/10.22306/al.v11i4.568 *Received: 09 Apr. 2024; Revised: 30 Nov. 2024; Accepted: 10 Dec. 2024*

Logistics cost management in foundry production using the Activity – Based Costing method

(pages 687-695)

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Keywords: Activity - Based Costing, logistics, process optimization, metallurgy.
Abstract: The aim of the paper is to present the application of Activity-Based Costing (ABC) method in logistics cost management in foundry production and its practical use in differentiating logistics service levels. The study was carried out in a foundry specializing in custom and small batch production of castings. The implementation of the ABC method involved three key phases. Tools such as Pareto analysis and the Lorenz curve were used to analyse the customers, which enabled the classification of customers according to their contribution to profit. The main result of the research was the creation of a calculation formula allowing detailed allocation of logistics costs to individual activities. At the same time, the key benefits of the ABC method for logistics management of foundry production were identified. The method was also used to analyse customers, which led to differentiation of logistics service levels based on their economic benefits. The main benefit of the implementation of the ABC method was the accurate allocation of logistics costs to activities, which enabled a better understanding of the economic efficiency of logistics processes. However, the study was time and data intensive, with some of the data based on educated guesses, which may have affected the accuracy of the results. Moreover, the focus on custom foundry production limits the generalizability of the conclusions. However, the ABC method has opened up new opportunities for data automation and optimization of logistics processes through digital technology, which contributes to modernise logistics management in foundry production.

https://doi.org/10.22306/al.v11i4.569 *Received: 10 Apr. 2024; Revised: 29 Nov. 2024; Accepted: 12 Dec. 2024*

Spatial differentiation of Poland's voivodeship in the context of linear infrastructure development in 2011-2021

(pages 697-707)

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Keywords: linear infrastructure, transport infrastructure, provinces, synthetic measure, TOPSIS method.
Abstract: The development of linear infrastructure is important for the development of logistics, for the economic development of regions. The is at the same time spatially differentiated between regions. The regions are strongly developing their linear infrastructure in order to reduce the disparities in the development of facilities and roads. The aim of the study was to diagnose the condition of linear infrastructure and to indicate its spatial changes in the years 2011-2021 in Poland. The were used to build a synthetic measure using the Technique for Order Preference by Similarity to an Ideal Solution method. The synthetic measure of linear infrastructure ranged from 0.01 (warmińsko-mazurskie) to 0.60 (śląskie) in 2010 and 0.31 (świętokrzyskie, podlaskie) to 0.56 (śląskie, małopolskie) in 2021. A higher value of synthetic

measure of linear infrastructure indicates a better position and higher competitiveness of the voivodeship within the research area. The provinces well equipped with linear infrastructure include the provinces of śląskie, dolnośląskie, małopolskie. The provinces where there is an improvement, and road connections are developing, include podlaskie, świętokrzyskie. They are not counted among the highly developed economically and do not make the best use of the opportunities offered by a developed road network. Action taken in this aspect must be based on analyses to facilitate comparisons and on current information necessary for effective action.

https://doi.org/10.22306/al.v11i4.572 *Received: 30 Apr. 2024; Revised: 02 Oct. 2024; Accepted: 31 Oct. 2024*

The impact of management systems and human resources on logistics performance: an empirical study

(pages 709-718)

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Keywords: administrative management, human resources, logistics performance, supply chain, SEM.
Abstract: The performance of logistics represents an essential dimension of supply chain management, incorporating a range of strategies and indicators to assess the proficiency and efficacy of logistics flows. This study empirically analyzes the relationships between management systems, human resources, and logistics performance in the province of Manabí, Ecuador. Using structural equation modeling (SEM), data was collected from a questionnaire of 144 questions evaluated in a Likert scale of five (5) points and applied to 117 managers across various industries. The results indicate that integration and personnel competency development significantly impact logistics performance. Likewise, the research highlights that to enhance logistics performance, companies should focus on improving their management systems, fostering integration with suppliers and customers, and providing effective training to enhance employee competencies. Additionally, the study emphasizes the importance of logistics infrastructure and human capital development as crucial factors for achieving efficient logistics performance. This paper contributes to understanding how management systems and human resources affect logistics performance in a developing region, providing a foundation for future strategies aimed at continuous improvement in local supply chains.

https://doi.org/10.22306/al.v11i4.573 *Received: 14 May 2024; Revised: 30 June 2024; Accepted: 19 Sep. 2024*

The impact of outsourcing cold chain logistics services on the financial performance of agricultural enterprises in the southeast region of Vietnam

(pages 719-727)

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ABSTRACTS

Keywords: financial performance, cold chain logistics, agricultural enterprise, Vietnam.
Abstract: This study delves into the agricultural industry and the cold chain logistics market, focusing on the impact of outsourcing cold chain logistics services on the financial performance of agricultural enterprises in the Southeast region of Vietnam. It assesses various factors influencing businesses' decisions to use cold chain logistics services, including electronic word-of-mouth, corporate image, outsourcing mindset, advantages, hazards, strategic considerations, functional features, supplier variables, interparty relationships, and environmental factors. The study's findings demonstrate high reliability, with Cronbach's Alpha coefficients ranging from 0.811 to 0.877. The observed variables in this Exploratory Factor Analysis (EFA) had factor loadings ranging from 0.535 to 0.882 (all exceeding 0.5), indicating that no variables were removed and that the observed variables met the EFA analysis requirements. The EFA categorized 56 observed variables into 12 distinct factors, clarifying the variable structure. Confirmatory Factor Analysis (CFA) validated the research model's appropriateness, confirming its effectiveness in describing relationships between variables. Overall, the study provides robust evidence supporting the reliability and validity of the research model in assessing the impact of outsourcing cold chain logistics services on enterprises' financial performance.