
ABSTRACTS

<https://doi.org/10.22306/al.v11i1.433>

Received: 04 June 2023; Revised: 04 Jan. 2024; Accepted: 12 Feb. 2024

Environmental sustainability and operational performance in the road freight sector

(pages 1-12)

Munyaradzi Mlambo

Department of Transport and Supply Chain Management, University of Johannesburg, Auckland Park, Johannesburg, South Africa, mlambo.sda@gmail.com (corresponding author)

Joash Mageto

Department of Transport and Supply Chain Management, University of Johannesburg, Auckland Park, Johannesburg, South Africa, joashm@uj.ac.za

Sebonkile Thaba

Department of Transport and Supply Chain Management, University of Johannesburg, Auckland Park, Johannesburg, South Africa, scthaba@uj.ac.za

Keywords: operational performance, canonical correlation analysis, environmentally sustainable practices, trucking industry and road freight, logistics management.

Abstract: Road freight plays a pivotal role in the movement of goods from the point of production to the point of consumption. Transportation of freight by road is associated with high operational costs which increases cost of landed goods. The use of trucks is associated with greenhouse gas (GHG) emissions and congestion especially in urban areas. The trucking industry dominates freight movement in many countries including South Africa, necessitating the need to improve its operational performance. While researchers argue that implementation of environmentally sustainable practices (ESP) by trucking firms is likely to influence operational performance (OP), the actual effect is unknown. The purpose of this study was to investigate the effect of ESPs on OP among trucking firms. A survey of 124 trucking firms was conducted and the data was analysed using canonical correlation analysis. The ESPs identified were energy efficiency, driver behaviour, and advanced technology. The results revealed that there is an inverse relationship between ESPs and OP, with advanced technology being a major contributing practice to the relationship. Limited funding was identified as a major inhibitor to the implementation of ESPs among the trucking enterprises. This study informs managers of trucking enterprises that the implementation of environmentally sustainable practices would not likely result in higher operational performance, as such, they should implement the practices as a social good as opposed to for profits. The study investigated a complex phenomenon in an important sector of the economy in South Africa and provide some policy directions.

<https://doi.org/10.22306/al.v11i1.445>

Received: 26 June 2023; Revised: 16 Oct. 2023; Accepted: 09 Jan. 2024

Differentiation of stocks by the ABC approach in the synergy of the order penetration point of the logistics chain

(pages 13-19)

Katarina Teplicka

Technical University of Košice, Faculty of Mining, Ecology, Process Control and Geotechnologies, Department of Management, Park Komenského 19, 042 00 Košice, Slovak Republic, EU, ORCID: 0000-0002-4827-6781, katarina.teplicka@tuke.sk

Martin Hart

Mendel University in Brno, Faculty of Business and Economics, Department of Business Economics, Zemědělská 1, 613 00 Brno, Czech Republic, EU, ORCID: 0000-0002-4732-1229, martin.hart@mendelu.cz

Sona Hurna

Mendel University in Brno, Faculty of Business and Economics, Department of Business Economics, Zemědělská 1, 613 00 Brno, Czech Republic, EU, ORCID: 0000-0001-7001-4860, sona.hurna@mendelu.cz (corresponding author)

Keywords: logistic chain, order penetration point, costs, optimization, ABC method.

Abstract: This research summarizes the results of the scientific discussion about the logistic chain and its order penetration point and influences on the costs of stocks. The main goal of this article is to point out determining the order penetration point of the logistics chain and differentiation of stocks according to importance from the point of view of optimizing costs and securing liquid financial resources. The object of the research was the industrial company. In this research, methods focused on using ABC analysis and Pareto analysis. The results of this research show 5 order penetration points (OPP1-OPP5) and a Push and Pull system to manage material flows for order penetration point of the logistics chain at the customer's order point. Cost optimization was solved by classifying the stocks into categories A, B, and C which is an important fact for planning and inventory management. ABC method divided 100 types of inventories with costs €5 million into categories A, B, C. Critical types of stocks in category A represents the group of stocks 38,92,7,52,13,54,90 that were reduced. This reduction of critical stocks led to the release of funds tied up in stocks. This change has a positive effect on the financial side of the company's cash flow – financial flows.

<https://doi.org/10.22306/al.v11i1.446>

Received: 27 June 2023; Revised: 04 Sep. 2023; Accepted: 20 Oct. 2023

Strategic enhancement of Zakat collection and distribution in philanthropic institutions: integration of SERVQUAL, Kano, and QFD

(pages 21-32)

Hirawati Oemar

Industrial Engineering Universitas Islam Bandung, Jl. Taman Sari 1, Bandung 40116 Indonesia,
hirawatio@yahoo.co.id

Ulima Alifani

Industrial Engineering Universitas Islam Bandung, Jl. Taman Sari 1, Bandung 40116 Indonesia,
ulimaalifani@gmail.com

Yan Orgianus

Industrial Engineering Universitas Islam Bandung, Jl. Taman Sari 1, Bandung 40116 Indonesia,
yorgianus@yahoo.co.id (corresponding author)

Keywords: service quality, Kano, SERVQUAL, quality function deployment, philanthropic institutions.

Abstract: Zakat philanthropic institutions have a pivotal role in fund collection and distribution, yet they haven't realized their full potential primarily due to diminished public trust. Addressing this challenge requires strategies to elevate service quality. This study introduces an integrated method combining SERVQUAL, Kano, and Quality Function Deployment (QFD) to optimize Zakat service quality. Out of twenty-one service attributes evaluated, fourteen were identified as pivotal for strategic enhancement, spanning areas like information management, human resources, and product diversification. Utilizing the QFD framework, these attributes were transformed into actionable quality improvement measures. The suggestions for quality improvement measures include refining website functionalities, ensuring consistent and engaging information dissemination, comprehensive employee training, introducing e-wallet options, and expanding student loan provisions. By integrating SERVQUAL, Kano, and QFD, this research offers a holistic assessment approach, emphasizing only those service aspects that truly resonate with donor satisfaction. The findings and recommendations present immediate actionable insights for institutions aiming to augment zakat collection and distribution efficacy.

<https://doi.org/10.22306/al.v11i1.447>

Received: 28 June 2023; Revised: 01 Sep. 2023; Accepted: 19 Oct. 2023

Examination of the selection of logistics service providers

(pages 33-45)

Gabor Nagy

University of Miskolc, HU-3515 Miskolc-Egyetemváros Hungary, Hungary, EU,
gabor.nagy4@uni-miskolc.hu (corresponding author)

Bela Illes

University of Miskolc, HU-3515 Miskolc-Egyetemváros Hungary, Hungary, EU,
bela.illes@uni-miskolc.hu

Agota Banyai

University of Miskolc, HU-3515 Miskolc-Egyetemváros Hungary, Hungary, EU,
agota.banyaine@uni-miskolc.hu

Keywords: supply chain, logistics service provider, process design, decision making, selection.

Abstract: The selection of logistics service providers plays a crucial role in the success of an organization's supply chain management. The new industrial revolution taking place today provides solutions that prioritize the issue of quality and also raise reliability to a new level, both on the service provider's and user's sides. As businesses grow and expand, the need for efficient and reliable logistics services becomes increasingly important. This study examines how to determine the criteria for the selection of logistics service providers in the current technological environment. The choice of logistics service provider has significant implications for an organization's operations and overall performance. Optimum selection can lead to enhanced customer satisfaction, cost savings, improved efficiency, and a competitive advantage. However, poor selection can result in logistical inefficiencies, decreased customer satisfaction, increased costs, and negative impacts on organizational reputation. Hence, careful consideration and evaluation of potential service providers are crucial. The digitized environment offers a solution for accessing large-scale databases, which provide well-founded decision evaluation plans based on a large number of samples. The quality characteristics influencing the logistics parameters were examined and weighted from the perspective of customer requirements. By exploring various aspects, we aim to shed light on the intricacies of this process and provide insights that can assist organizations in making informed decisions. We attempt to make the indices that appear as bottlenecks in the specified order more efficient using an optimization procedure.

<https://doi.org/10.22306/al.v11i1.448>

Received: 29 June 2023; Revised: 12 Oct. 2023; Accepted: 21 Nov. 2023

Sustainable logistics and passenger transport in smart cities

(pages 47-56)

Olha Prokopenko

Estonian Entrepreneurship University of Applied Sciences, 10a Suur-Sõjamäe, Tallinn 11415, Estonia, EU
Sumy State Makarenko Pedagogical University, 87 Romanska Street, Sumy 40000, Sumy region, Ukraine,
olha.prokopenko@eek.ee (corresponding author)

Gunnar Prause

Wismar Business School, Wismar University, 14 Philipp-Müller-Straße, Wismar 23966, Germany, EU
Tallinn University of Technology, 5 Ehitajate tee, Tallinn 12616, Estonia, EU, gunnar.prause@hs-wismar.de

Taliat Bielialov

Kyiv National University of Technologies and Design, 2 Nemyrovycha-Danchenko Street, Kyiv 01011, Ukraine,
bielialov.taliat.knutd23@gmail.com

Marina Jarvis

Estonian Entrepreneurship University of Applied Sciences, 10a Suur-Sõjamäe, Tallinn 11415, Estonia, EU
Tallinn University of Technology, 5 Ehitajate tee, Tallinn 12616, Estonia, EU, marina.jarvis@eek.ee

Mykola Holovanenko

Taras Shevchenko National University of Kyiv, 60 Volodymyrska Street, Kyiv 01033, Ukraine,
mykolaholovanenko47@gmail.com

Inna Kara

Lviv Polytechnic National University, 14 Stepana Bandery Street, Lviv 79000, Ukraine,
demchuk_inna@ukr.net

Keywords: sustainable development, smart city, sustainable logistics, green logistics, ecology, e-commerce.

Abstract: The rapid growth of urban populations, coupled with the imperatives of decarbonization and the relentless march of urbanization, has thrust modern cities into a crucible of multifaceted challenges. In response, the Smart City concept has emerged as a shared paradigm for addressing these urban complexities. This transformative approach touches upon various facets of urban life, encompassing areas such as the economy, education, and governance. Among these, logistics stands out as a pivotal component of the Smart City framework, necessitating innovative and sustainable solutions. This article delves into the intricate nexus between sustainable logistics systems and the evolution of the Smart City concept. Drawing from both qualitative and quantitative research methodologies, including multivariate analysis, the study synthesizes data from primary sources collected during a series of European projects conducted from 2020 to 2023, in addition to secondary data sources. A central inquiry revolves around the symbiotic relationship between e-commerce dynamics and the sustainability of smart city logistics solutions. The findings of this investigation illuminate a compelling correlation between the profitability of logistics enterprises and the key indicators of logistics development underpinning smart cities. By unveiling these interdependencies, this research contributes to our understanding of how sustainable logistics and passenger transport systems are pivotal to the ongoing development of smart cities, offering valuable insights for urban planners, policymakers, and industry stakeholders alike.

<https://doi.org/10.22306/al.v11i1.449>

Received: 04 July 2023; Revised: 12 Oct. 2023; Accepted: 19 Dec. 2023

The improvement of the production process performance through material flow and storage efficiency increases serial production

(pages 57-65)

Helena Makysova

Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava, Institute of Industrial Engineering and Management, Jána Bottu 25, 917 24 Trnava, Slovak Republic, EU, helena.makysova@stuba.sk (corresponding author)

Filip Galgoci

Volkswagen Slovakia, a.s., Jána Jonáša 1, 843 02 Bratislava 49, Slovak Republic, EU, filip.galgoci@volkswagen.sk

Zdenka Gyurak Babelova

Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava, Institute of Industrial Engineering and Management, Jána Bottu 25, 917 24 Trnava, Slovak Republic, EU, zdenka.babelova@stuba.sk

Augustin Starecek

Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava, Institute of Industrial Engineering and Management, Jána Bottu 25, 917 24 Trnava, Slovak Republic, EU, augustin.starecek@stuba.sk

Keywords: lean manufacturing, material flow, production system, warehouse management, workplace layout.

Abstract: In the current era is increasing intention for identifying and mitigating production bottlenecks, particularly in industrial enterprises, by optimizing material and information within the broader context of enterprise logistics. In industrial practice, when applying lean management or any innovation i.e. change in the production process, a common problem is the lack of knowledge of the value stream as a complete system. The efforts of industrial engineers to streamline material flow and warehouse management are closely linked to the reduction of financial resources associated with operations. The paper is focused on improving performance of production process through material flow and storage efficiency increase. The aim of this paper is to describe the implemented analysis of the material and information flow of a selected product and explain the proposed solution to streamline the warehousing system in an industrial enterprise. Desired result was to adjust the size of warehouse at the line, to save production space and to optimize production process in order to maximize the proportion of time in which value is added to the product in the total continuous production time. Different methods (mathematical-statistical calculations, MIFA analysis, MIFD method, guided interview method, observation, GEMBA walk) have been used in the analysis of the current situation. In current turbulent times, when industrial enterprises are pushed to continuously innovate in order to reduce warehousing capacities, it is necessary to continuously improve performance in the context of sustainable business.

<https://doi.org/10.22306/al.v11i1.451>

Received: 13 July 2023; Revised: 06 Sep. 2023; Accepted: 19 Oct. 2023

Analysis of corporate management risks in the work of logistics enterprises

(pages 67-77)

Vaqif Maharram Quliyev

Azerbaijan State University of Economics (UNEC), 6, Istiqlaliyyat str., Baku, Azerbaijan, authorsresearchers@gmail.com (corresponding author)

Sevinj Agamamed Abbasova

Azerbaijan State University of Economics (UNEC), 6, Istiqlaliyyat str., Baku, Azerbaijan, sevinjabbasova27@unec.edu.az

Mehriban Shaban Aliyeva

Azerbaijan State University of Economics (UNEC), 6, Istiqlaliyyat str., Baku, Azerbaijan, mehriban_aliyeva@unec.edu.az

Elnara Robert Samedova

Azerbaijan State University of Economics (UNEC), 6, Istiqlaliyyat str., Baku, Azerbaijan, Samadova7@unec.edu.az

Manzar Aziz Mammadova

Azerbaijan State University of Economics (UNEC), 6, Istiqlaliyyat str., Baku, Azerbaijan,
Manzarmammadova21@unec.edu.az

Keywords: risk, logistics, corporate risk, logistics company, risk management.

Abstract: Relevance of the problem. Complexity in the global supply chain increase the risks that enterprises are exposed to, including logistics. Purpose of the article. The article analyzes the corporate management risks of logistics enterprises. Methods. The article used the method of statistical groupings and statistical tables, the game theory method, the matrix game method. Main results. The study substantiates an algorithm for the analysis of corporate management risks of using blockchain technologies in the activities of logistics companies when concluding smart contracts, certifying new types of transportation, and integrating cryptocurrency for delivery payments. Examples of choosing an economic strategy for managing the risks of a logistics company using the criteria of maximax, Laplace, Wald, Savage, Bayesian, Hurwicz were elaborated. Referring to the relevant calculations, it was determined that the most often recommended strategy was “the certification of new types of logistics services”. It was determined that this strategy will contribute to minimizing the logistics company's risks associated with the implementation of blockchain technology through ensuring the competitive position through innovation. Practical relevance. The findings can be useful for managers of logistics companies in practical implementation and use of blockchain technologies as well as in risk management. It is expedient to focus the further research prospects onto the integration of blockchain technology with modern logistics companies' ERP systems in the further developing the Logistics 4.0 concept.

<https://doi.org/10.22306/al.v11i1.452>

Received: 13 July 2023; Revised: 09 Sep. 2023; Accepted: 07 Dec. 2023

Roadmap to achieve operational excellence through Lean Management implementation and quality management system conformance

(pages 79-86)

Oumaima El Affaki

Industrial Management and Plastics Forming Technology Team, Mechanics, Engineering and Innovation Laboratory
LM2I, ENSEM, Hassan II University, BP 8118 Casa- Oasis, Casablanca, Morocco,
oumaima.elaffaki@gmail.com (corresponding author)

Mariam Benhadou

Industrial Management and Plastics Forming Technology Team, Mechanics, Engineering and Innovation Laboratory
LM2I, ENSEM, Hassan II University, BP 8118 Casa- Oasis, Casablanca, Morocco, mariambenhadou@yahoo.fr

Abdellah Haddout

Industrial Management and Plastics Forming Technology Team, Mechanics, Engineering and Innovation Laboratory
LM2I, ENSEM, Hassan II University, BP 8118 Casa- Oasis, Casablanca, Morocco, abdellahhaddout@yahoo.fr

Keywords: automotive industry, lean management, lean manufacturing, operational excellence, quality management.

Abstract: Automotive companies are facing major challenges, namely competitiveness and the evolution that characterizes the sector. To ensure their sustainability, companies operating in the automotive industry are concentrating their efforts on reducing waste sources throughout the supply chain by implementing a variety of Lean Management tools. The compliance of the quality management system with the requirements of the international automotive standard IATF 16949:2016 is also a top priority for automotive suppliers. IATF certification is required to operate in the automotive market and enables organizations to meet customer requirements and demonstrate the quality assurance of their systems. This paper analyzes the principles of the Lean Management organizational tools in correlation with the requirements of the IATF automotive standard and determines their synergistic impact on operational excellence. Based on the correlation analysis performed, an original roadmap that will serve as a guide for automotive companies has been developed. The findings show that in order to achieve operational excellence, it is necessary to implement the five Lean Management organizational tools in correlation with the operational requirements dictated in chapter 8 as well as the leadership requirements outlined in chapter 5 of the international automotive standard.

<https://doi.org/10.22306/al.v11i1.455>

Received: 21 July 2023; Revised: 16 Oct. 2023; Accepted: 07 Dec. 2023

Combining artificial neural networks and fuzzy analytic network process for holistic sustainable performance evaluation in the Moroccan mining industry (pages 87-98)

Farchi Chayma

Hassan First University, Faculty of Sciences and Technologies, Department of Mechanical and Electrical Engineering, Research Laboratory: IMII (Engineering, Industrial Management, and Innovation), 50 Rue Ibnou Lhaytham B.P. 577, Settat 26002, Morocco, c.farchi@uhp.ac.ma (corresponding author)

Touzi Badr

Mohammed V University, Faculty of Legal, Economic and Social Sciences - Souissi, Department of economics and management sciences, Research laboratory: LARCEPEM (interdisciplinary center for research in performance and competitiveness), Avenue des Nations Unies, Agdal, Rabat Maroc B.P:8007.N.U, Morocco, badr.touzi@um5.ac.ma

Farchi Fadwa

Hassan First University, Faculty of Sciences and Technologies, Department of Mechanical and Electrical Engineering, Research Laboratory: IMII (Engineering, Industrial Management, and Innovation), 50 Rue Ibnou Lhaytham B.P. 577, Settat 26002, Morocco, f.farchi@uhp.ac.ma

Mousrij Ahmed

Hassan First University, Faculty of Sciences and Technologies, Department of Mechanical and Electrical Engineering, Research Laboratory: IMII (Engineering, Industrial Management, and Innovation), 50 Rue Ibnou Lhaytham B.P. 577, Settat 26002, Morocco, amousrij@fst.ac.ma

Keywords: sustainable performance evaluation, Moroccan mining industry, fuzzy analytic network process, artificial neural networks, holistic analysis.

Abstract: This article delves into the evaluation of sustainable performance in the mining industry, employing the Fuzzy Analytic Network Process (FANP) method. It specifically concentrates on examining five pivotal dimensions of sustainable development: economic, social, environmental, operational, and stakeholders. Through the application of the FANP method, a meticulous prioritized ranking is established, not only for these dimensions but also for the specific fields within each of them. This holistic approach provides a comprehensive, well-balanced assessment of sustainable performance, offering a wealth of valuable insights that can guide decision-making processes. Moreover, the method's utility extends beyond the mining sector; it is generalized into a versatile model that can be applied across different industries and research domains. This adaptability is achieved by incorporating a machine learning algorithm, with a primary focus on a multilayer perceptron. This model enables the precise determination of a company's overall multidimensional performance by quantifying various facets of performance, among other considerations. The research presented in this article serves to bridge an existing gap in integrated studies specific to the Moroccan mining industry. It provides actionable insights that can significantly enhance management practices and foster sustainable development, making it a valuable contribution to both the industry and the broader research community.

<https://doi.org/10.22306/al.v11i1.461>

Received: 03 Aug. 2023; Revised: 06 Sep. 2023; Accepted: 14 Nov. 2023

Implementation of cloud computing in the digital accounting system of logistics companies (pages 99-109)

Mohammad Ahmad Alnaimat

Alzaytoonah University of Jordan, Department of Accounting, Faculty of Business, St 594 Airport Rd., Amman, Jordan, mohammad.ahmad.alnaimat.auj@gmail.com

Oleg Kharit

International Association of Engineers, Unit 1, 1/F, 37-39 Hung To Road, Hong Kong, China, harit.oleg.iitt@gmail.com

Iryna Mykhailenko

Kharkiv National Automobile and Road University, Department of Higher Mathematics, Faculty of Transportatin System, Str. 25 Yaroslav the Wise, Kharkiv, 61002, Ukraine, irynamykhailenko@outlook.com (corresponding author)

Ihor Palchyk

Dnipro State Agrarian and Economic University, Department of Management and Law, Faculty of Management and Marketing, Str. 25 Serhiy Yefremova, Dnipro, 49000, Ukraine, ipal.dsaeu@ukr.net

Safar Purhani

Western Caspian University, Department of Finance and Accounting, Faculty of Economics and Business, Str. 31 Istiglaliyyat, Baku, AZ1001, Azerbaijan, seferpurhani2023@wcu.edu.az

Keywords: cloud storage, cloud services, computing, logistics companies, digital accounting.

Abstract: The aim of the article is to determine the capabilities of cloud services for meeting the needs of logistics companies in the management of supply chains and digital accounting. The study provides a review of current academic publications, analysis of official documentation of cloud service provider companies, and expert opinion of the authors of the study. The study was based on information about the 5 most popular cloud services used by companies to perform mathematical calculations. Amazon Web Services focus on reliability and scalability, providing a wide range of data storage and processing services, as well as performing serverless mathematical calculations. Microsoft Azure stands out for its integrated solutions, as well as data management and analytics services. Google Cloud offers a wide range of development and analytics tools, including data visualization and data sharing. Oracle Cloud provides comprehensive financial and database management solutions. SAP Cloud Platform specializes in financial management and analytics solutions. The results of the research open up prospects for studying the problems of integrating services built on different platforms and finding optimal solutions for combining the existing system of mathematical calculations in a logistics company with the offered cloud-based services.

<https://doi.org/10.22306/al.v11i1.464>

Received: 08 Aug. 2023; Revised: 04 Nov. 2023; Accepted: 28 Nov. 2023

The constructivist approach as a concept of active learning and teaching of optimization processes at technical universities

(pages 111-117)

Marcela Lascsakova

Technical University of Kosice, Faculty of Mechanical Engineering, Department of Applied Mathematics and Informatics, Letná 9, 042 00 Košice, Slovak Republic, EU, marcela.lascsakova@tuke.sk

Keywords: education, constructivism, operational research and logistics.

Abstract: As we move toward a more competitive global economy, the demand for highly qualified people to create and manage more efficient logistics systems, such as flows and management of materials or information, human flows, and supply chains, increases. Without logistics, the commercial world would grind to a halt. Businesses depend on logistics professionals to keep production and delivery moving forward which makes logistics education crucial. Companies expect their future employees to gain practical information, and to master what they are learning. Students must know how to apply what they learn. This is a reason why increasing importance is attributed to the constructivist approach to teaching and learning in university education. Through experiments or simulation of processes, and group work based on previous experience and knowledge, students better uncover the laws of phenomena. By actively engaging in the learning process, deeper and long-term applicable knowledge about the studied processes is acquired. The goal of this article is to implement the constructivist approach in the education of operational research and logistics at technical universities.

<https://doi.org/10.22306/al.v11i1.467>

Received: 14 Aug. 2023; Revised: 16 Oct. 2023; Accepted: 03 Dec. 2023

Application of a time series to analyse the evaluation of road traffic accidents in Slovakia

(pages 119-129)

Miriam Andrejiova

The Technical University of Kosice, Faculty of Mechanical Engineering, Department of Applied Mathematics and Informatics, Letná 9, 042 00 Kosice, Slovak Republic, EU, miriam.andrejiova@tuke.sk

Keywords: road traffic accident rate, indicators of traffic accident rates, time series, ETS method, forecasting.

Abstract: Road traffic accidents represent an important part of the road traffic system. In many cases, they may lead not only to damage to vehicles and property, but also serious injuries or even death of road traffic participants. The prevalence of road traffic accidents and the related fatality rates in a country is a significant indicator of the maturity of that country and its inhabitants. The purpose of this article was to review the prevalence of road traffic accidents and fatality rates in the Slovak Republic over the period from 2009 to 2022. The analysis was conducted by applying basic statistical methods and a time series analysis (exponential smoothing method – ETS). The ETS is a method used for forecasting a time series univariate. The focus of this method is on three time series components (error E, trend T and seasonal S), while defining how the individual components interact. The results of the analysis indicated a positive, i.e. a falling trend in road traffic accident rates, according to the numbers of persons killed/injured in road traffic accidents in Slovakia. Compared to 2009, in 2020 there was a decrease in the number of road traffic accidents by almost 54%. In 2022, the number of fatalities decreased by almost 30% compared to those in 2009. The modelling also involved a forecast of the number of persons killed/injured in road traffic accidents for a period of 5 years.

<https://doi.org/10.22306/al.v11i1.484>

Received: 25 Sep. 2023; Revised: 29 Dec. 2023; Accepted: 30 Jan. 2024

Research of urban passenger transport in countries with a high Human Development Index

(pages 131-138)

Aiymzhan K. Kerimbek

Department of Tourism and Services, Almaty Technological University, 050012, 100 Tole bi Str., Almaty, Republic of Kazakhstan, kerimbekaiymzhank@gmail.com (corresponding author)

Katira B. Satymbekova

Department of Accounting and Audit, M. Auezov South Kazakhstan University, 160012, 5 Tauke Khan Ave., Shymkent, Republic of Kazakhstan, katirasatymbekova@outlook.com

Ainash A. Nurgaliyeva

Department of Economics, Toraighyrov University, 140008, 64 Lomov Str., Pavlodar, Republic of Kazakhstan, ainashnurgaliy23@proton.me

Zauresh O. Imanbayeva

Department of Public Administration, Finance and Marketing, K. Zhubanov Aktobe Regional University, 030005, 34 Moldagulova Ave., Aktobe, Republic of Kazakhstan, zaureshiman23@protonmail.com

Bakytgul Z. Zhumagalieva

Department of Business and Management and Service Sector, Kazakh-Russian International University, 030006, 52 Aiteke Bi Str., Aktobe, Republic of Kazakhstan, bakytgulzhumaga12@outlook.com

Keywords: passenger traffic, gross domestic product, infrastructure, economic indicators, service quality improvements.

Abstract: The aim of this research is to investigate urban passenger transport in countries with a high human development index and establish a logical relationship between this index and the features of urban transport in developed countries worldwide. The study's methodology is based on economic and statistical approaches to the economy's main indicators. Mathematical modelling is used to obtain results on the influence of passenger traffic indicators on GDP. The study also assesses the role of regulators in this process. The study's results are interpreted based on the experience of the largest countries with the highest degree of interaction between these indicators. Conclusions are drawn regarding the need to develop preventive measures, taking into account the best international practices. The results and conclusions of this research are significant for public transport workers. They provide a practical opportunity to improve various aspects of their activities and the quality of service in the field of public urban transport.

<https://doi.org/10.22306/al.v11i1.487>

Received: 29 Sep. 2023; Revised: 15 Nov. 2023; Accepted: 18 Mar. 2024

Charting a sustainable course: how normative factors shape intentions for Autonomous Rapid Transit commuting

(pages 139-148)

Nur Zaimah Ubaidillah

Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia,
unzaimah@unimas.my

Fatin Nur Hidayah Taib Khan

Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia,
tkfnhidayah@unimas.my (corresponding author)

Siti Nur Fatin Morshidi

Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia,
sitifatinm@gmail.com

Farhana Ismail

Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia,
ifarhana@unimas.my

Nurul Izza Abd. Malek

Faculty of Economics and Business, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia,
amnizza@unimas.my

Keywords: Autonomous Rapid Transit, subjective norm, personal norm, green transport, sustainability.

Abstract: With the continuous advancement of technology, transportation methods have undergone significant transformation, giving rise to innovative solutions like Autonomous Rapid Transit (ART). ART systems are designed to utilize hydrogen energy, serving as an efficient and eco-friendly power source. This not only addresses issues related to traffic congestion but also presents a promising solution to environmental challenges. However, the success of implementing such technologies to mitigate these challenges relies heavily on the support and acceptance of potential users. This study aims to explore the intention of users to adopt ART as a mode of transportation in the context of Sibu, Sarawak, Malaysia. This study conducted a comprehensive survey involving 350 respondents and employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyse the data. The findings of this study reveal that several critical factors significantly influence the behavioural intention to use ART for commuting. Specifically, subjective norms, perceived behavioural control, and individual attitudes have a significant impact on the intention to embrace ART as a sustainable mode of transportation. However, the study also finds that personal norms do not exhibit a significant relationship with behavioural intention. This insight underscores the pivotal role of societal influences compared to individually internalized values in shaping user decision-making with regard to the adoption of ART for commuting. It is imperative for policymakers to take into account the perspectives and considerations of users when formulating policies related to the introduction and promotion of new public transportation modes where private transportation has traditionally been prevalent.

<https://doi.org/10.22306/al.v11i1.490>

Received: 14 Oct. 2023; Revised: 08 Dec. 2023; Accepted: 19 Jan. 2024

**The dynamics of port competition and efficiency in Vietnam amidst COVID-19:
a decadal analysis**

(pages 149-160)

Ha Thi Quach

Vietnam Maritime University, Faculty of Political Theory, 484 Lach Tray Street, Haiphong City, Vietnam,
vanhahanghai.llct@vimaru.edu.vn

Thuan Duc Tran

Thuan Phat Technology-Service and Trading-Production-Export-Import Co.,Ltd, Ho Chi Minh City, Vietnam
tranthuanbbca@gmail.com

Khanh Ngoc Nguyen

Hanoi University of Mining and Geology, No.18, Pho Vien Street, Duc Thang Ward, Bac Tu Liem District, Hanoi,
Vietnam, nguyenngoekhanh@humg.edu.vn

Phuong Thanh Le

Thuyloi University, Faculty of Economics and Management, 175 Tay Son, Dong Da district, Hanoi, Vietnam,
phuonglt_kt@tlu.edu.vn (corresponding author)

Keywords: seaports, competition, efficiency, Data Envelopment Analysis, Vietnam.

Abstract: Vietnamese seaports play an important role as crossroads for import, export and transformation in delivery from maritime transport to rail, road and inland waterway transport. Over the last two decades, the seaport system has been reformed with the participation of private and foreign investors. Consequently, this issue enhances competition between seaports and brings changes to the seaports' operations. In this article, the relationship between seaport competition and efficiency is examined in the context of Vietnam, an emerging market economy. The longitudinal data from 2011 to 2022 is collected to quantify the competition degree of Vietnamese seaports and Data Envelopment Analysis is used to measure seaport efficiency. A number of measures are used to quantify the competition level of the seaport system over time, including concentration ratio, Gini index, and Hirschman-Herfindahl Index. Besides, market share at both national and regional levels and distance to the nearest competing seaport are criteria of port-level competition. The results advocate an increasing trend of seaport competition in Vietnam. Moreover, based on Tobit regression models, the competition among seaports relates positively to efficiency using both the 2021-2022 and 2015-2016 data sets. Under the COVID-19 pandemic, the impact of external factors on seaport efficiency is insignificant and inconsistent due to the disruption of logistics systems and disrupted links to the outside environment.
