ABSTRACTS

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Model calculation of the impact of IFRS 16 on financial indicators of companies in transport

(pages 488-501)

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Keywords: leasing, IFRS 16, reporting, transport.
Abstract: The study examines the impacts of applying the IFRS 16 standard on operating expenses (OPEX) and other key financial indicators withing the Czech transport company environment. The PRISMA 2020 method and visualization using VOSviewer software were used for the literature search. The empirical part is based on data from a major transport company, with over 600 thousand records analyzed, of which 4,105 relevant leasing contracts remained after validation. Five accounting scenarios were compared based on the developed model. The results show that applying IFRS 16 leads to a 4.2% reduction in OPEX, an increase in EBITDA and an increase in long-term assets and liabilities. The study provides evidence of significant accounting and economic differences between the national standard and the IFRS solution and underlines the need to take them into account in management financial decision-making.

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An exploratory study of supply chain performance in the digital era: evidence from Morocco

(pages 502-516)

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Keywords: supply chain performance, digital transformation, exploratory study, emerging country, Morocco.
Abstract: This study aims to explore the determinants of supply chain performance in the digital era, with a particular focus on identifying both the benefits and challenges of digital transformation within the Moroccan context. The research

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seeks to contribute to the understanding of how digital technologies reshape supply chain practices in emerging economies. A qualitative approach was adopted, involving semi-structured interviews with 30 experts and specialists in supply chain management and digital transformation. The collected data were analyzed using a textometric approach, which enabled the identification of recurrent themes, patterns, and relationships among the determinants influencing supply chain performance. The results reveal that digitalization enhances supply chain performance through improved transparency, agility, and cost efficiency, while also fostering stronger collaboration across stakeholders. However, significant challenges persist, including digital infrastructure limitations, high implementation costs, resistance to change, and gaps in digital skills. These findings underscore the dual nature of digital transformation as both an opportunity and a constraint in the Moroccan supply chain landscape. The study provides insights for policymakers and managers to design strategies that leverage digital tools for supply chain optimization while addressing the contextual challenges faced by Moroccan firms. By focusing on Morocco as an emerging economy, this research offers fresh evidence on the role of digital transformation in supply chain performance, contributing to both academic debates and managerial practices in developing contexts.

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Humanitarian logistics network design for emergency temporary shelters: a Brown-Gibson and p-median optimization approach

(pages 517-528)

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Keywords: disaster declaration, facility location, Brown-Gibson, optimization model.
Abstract: The effects of climate change have impacted the whole planet, and although it is certain that losses in infrastructure have cost millions of dollars, what is most worrying is the millions of lives lost; specially in countries such as Mexico. In Mexico, the municipalities of the capital region of the state of Veracruz have been strongly affected by extreme meteorological phenomena, which on several occasions have led to temporary relocation of those affected. Unfortunately, no contingency plan that considers the location of temporary shelters has been proposed. For this reason, the objective of this study is to design of a Network for Temporary Shelters with four nodes by combining a technique with various criteria and an optimization model that not only allows for locating the municipality that would form part of the network through a minimum distance travelled, but also have the characteristics that would allow for safe quality accommodations for those affected in the capital region of Veracruz. The results show that the municipalities of Teocelo, Jalcomulco, Las Vigas Ramírez and Xico have the best conditions to form this network.

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Blockchain-enabled business intelligence for strategic agility in logistics information flows: the mediating role of data transparency

(pages 529-537)

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Keywords: logistics information flows, blockchain-enabled business intelligence, data transparency, strategic agility, SMEs.
Abstract: This study examines how blockchain-enabled business intelligence (BEBI) strengthens strategic agility by improving the integrity and visibility of organizational information flows in small and medium-sized enterprises (SMEs). The addressed problem is that SMEs operating in dynamic markets often rely on analytics built on fragmented and unverifiable data, which weakens the speed and reliability of strategic responses across logistics-relevant flows (information, financial, and human flows). Using a questionnaire survey of 372 senior and middle managers and structural equation modeling with SmartPLS 4, the study tests a model linking BEBI, data transparency, and strategic agility. The results indicate that BEBI positively influences strategic agility and data transparency, and that data transparency positively affects strategic agility. Moreover, data transparency partially mediates the relationship between BEBI and strategic agility. The novelty of the study is the integration of blockchain-based trusted data architecture with business intelligence to explain how transparent, traceable, and reliable data flows enable faster sensing and reconfiguration of resources, supporting agile strategic actions in SMEs.

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The impact of logistics performance on economic growth: a comparative ARDL analysis for Turkiye and Poland

(pages 538-549)

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Keywords: transportation, logistics, supply chain management, economic growth, ARDL models.
Abstract: Transportation activities are among the most influential factors shaping economic growth and development. Since freight mobility and transport infrastructure play a strategic role in sustaining economic activity, understanding how different transport modes contribute to economic performance has become a critical research issue. This research aims to evaluate Poland, a significant economy in Central and Eastern Europe, and Turkiye, a bridge between Europe and Asia, and to reveal the role of transportation modes and supply chain integration in the development of economic growth in the Central and Eastern European region. The study employs the Autoregressive Distributed Lag (ARDL) modeling approach to capture both short-run and long-run relationships between transportation modes and economic growth, given that the

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variables exhibit different orders of integration. Annual time-series data covering the period 1995-2024 are used for both countries. The novelty of this research lies in its simultaneous, mode-specific comparison of Turkiye and Poland under a consistent methodology, providing new empirical evidence on the transport–growth nexus. Reveal that maritime transport contributes positively to long-term economic growth in Turkiye, while its effect in Poland is limited and negative. Rail transport emerges as the most influential and positively associated mode for economic growth in both countries. In contrast, air transport exhibits a negative and statistically significant effect only in Turkiye, whereas road transport shows no significant relationship in Turkiye but displays a short-term negative and subsequent positive effect in Poland. These results offer valuable insights for policymakers in designing efficient and sustainable transport strategies.

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Integration of electric freight logistics and energy communities: a system - level operating model

(pages 550-558)

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Keywords: electric vehicle, logistics, freight transport, renewable energy, energy community.
Abstract: The electrification of road freight transport is a priority objective of European decarbonisation policy; however, its large-scale implementation remains constrained by charging infrastructure availability, electricity grid capacity limits, and the specific energy demand profiles of freight transport operations. From a logistics perspective, this transition requires coordinated management of material, information, and energy flows within increasingly complex transport systems. The aim of this research is to examine how electric freight vehicles can be integrated into future logistics networks through operating models based on energy community principles. The study is grounded in a systematic review of relevant literature published between 2020 and 2025, focusing on technological trends, electric road freight vehicles, and energy supply configurations. The analysis indicates that existing research predominantly addresses route optimisation, infrastructure development, and capacity management, while system-level cooperation between energy communities and electric freight transport remains underexplored. The study proposes a conceptual model based on replaceable high-capacity energy storage units and decentralised charging infrastructure, enabling improved coordination between transport flows and energy flows. The framework supports more efficient utilisation of renewable energy and enhanced economic and network performance and is positioned relative to prevailing logistics and operational paradigms.

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A fuzzy-based framework for evaluating cruise ports of call

(pages 559-570)

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Keywords: cruise, port of call, port selection factors, fuzzy AHP.
Abstract: The cruise industry plays a pivotal role in the development of the tourism sector of nations. Yet, policies to attract cruise liners to call at a cruise terminal are still questionable. To fill literature gaps, the purpose of the study is to

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discuss the selection of cruise carriers (CCs) at ports of call. Based on relevant research and the operating features of cruise ships, the port selection factors (PSFs) that CC consider for port calls are firstly explored. A demand gap model based on a fuzzy Analytic Hierarchical Process (AHP) is then proposed to evaluate perceived differences on PSFs between port companies (PCs) and CCs. Finally, for a practical application, the PMP Exploitation Joint Stock Company (PMC) and its customers (i.e., CCs) in the BRVT port were surveyed to validate the model. The result shows that "port travel features" and "port management" concern CCs the most. Furthermore, currently, the BRVT port is facing two significant gaps, including: "health and sanitation conditions of the local population" (positive gap) and "existence of modern tourist centers" (negative gap). This study may provide useful information for port authorities to suggest practical policies in developing its cruise businesses. Besides, the sample size is a research limitation; thus, future research should extend the number of respondents for better policies.

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From sensor data to supply chain decisions: a mechanism framework for IIoT and sensor networks in automotive supply chains

(pages 571-580)

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Keywords: industrial internet of things, sensor networks, automotive supply chain, digital twins.
Abstract: Automotive logistics and supply chain networks coordinate complex multi-tier material flows under strict sequencing, transport synchronization, and quality constraints. These systems are highly sensitive to information-flow latency, exception-handling delays, and disruptions affecting inbound, production, and distribution logistics processes. Although Industrial Internet of Things (IIoT) and sensor-network technologies enable real-time visibility across material and transport flows, prior literature frequently emphasizes technological capability rather than clearly operationalized logistics decision mechanisms. This study develops a decision-centric mechanism framework explaining how IIoT-enabled sensing is translated into governed logistics decisions influencing reliability, responsiveness, inventory–production synchronization, and disruption mitigation in automotive supply chains. Based on a structured 2025 literature review (Scopus, Web of Science, IEEE Xplore; n = 13 included studies), four recurring sensor-to-decision mechanisms are identified: (M1) real-time visibility and traceability control, (M2) predictive asset and quality logistics, (M3) inventory–production flow synchronization, and (M4) event-driven logistics decision support. The contribution lies in formalizing reproducible sensor-to-decision pathways that connect sensing capability, analytics, decision triggers, and execution routines to measurable logistics performance outcomes.

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Integrating resilience and sustainability in supply chains: a strategic evaluation framework

(pages 581-591)

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Keywords: supply chain management, resilience, sustainability, strategic framework.
Abstract: Over recent years, global supply chains have been and continue to be under significant pressure resulting from major disruptions largely driven by the consequences of the COVID-19 pandemic, persistent geopolitical instability. Supply chains are also increasingly asked to undergo structural transformations to comply with rising sustainability requirements due to accelerating impacts of climate change. Although resilience and sustainability in supply chain and logistics have been largely studied, existing research mainly addresses the two concepts separately and offers limited frameworks to evaluate their simultaneous effects on logistics decision levels. This article proposes an evaluation framework to assess the joint impact of sustainability and resilience practices within organisations' supply chains. A dual methodological approach is adopted, combining a quantitative literature review using bibliometric analysis (Bibliometrix, Scopus database, 65 selected publications) with a qualitative content review of existing frameworks. Key supply chain practices are identified and classified across strategic, tactical, and operational decision levels, and their cross-impacts are evaluated on resilience and sustainability. The results reveal a structural pattern: Strong synergies between resilience and sustainability arise from practices optimising information flows, collaborative practices with stakeholders, circular and efficiency-driven processes. However, some unavoidable trade-offs are identified such as network diversification and multi-sourcing, inventory buffering, material-flow redundancy strategies and just-in-time management, which enhance resilience but increase resource consumption and transport emissions.The proposed framework offers a cross-impact evaluation tool for managers to assess supply chain resilience and sustainability performance within their organisations and prioritise implementation of strong synergy practices while mitigating trade-offs.

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AI agents for decision support in logistics management: a literature review

(pages 592-603)

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Keywords: intelligent agents, multi-agent systems, logistics management, supply chain, resilience.

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ABSTRACTS

Abstract: The increasing complexity, volatility, and sustainability pressures affecting global supply chains have accelerated the adoption of Artificial Intelligence (AI) technologies in logistics management. Among these AI approaches, Intelligent Agents (IAs) and Multi-agent Systems (MAS) have emerged as essential tools for supporting decentralized, adaptive, event-driven, and real-time decision-making processes in dynamic logistics environments. Unlike traditional centralized planning systems, agent-based approaches enable autonomous entities such as suppliers, warehouses, transportation units, and distribution centers to coordinate actions, exchange information, and manage variability. This paper presents a structured literature review of peer-reviewed studies indexed in Scopus and Web of Science on the use of AI agents to support decision-making in logistics management and supply chain operations. Particular attention is given to the strategic importance of intelligent agents in strengthening resilience, operational efficiency, and sustainability in increasingly uncertain logistics systems. The findings indicate that intelligent agents improve decision quality, responsiveness, coordination, and resource utilization across distributed logistics networks. Furthermore, Multi-Agent Systems enhance interoperability and collaboration among logistics actors, enabling more agile and resilient supply chains. However, challenges related to data quality, cybersecurity, governance, scalability, and human–AI collaboration continue to limit large-scale implementation in industrial environments.

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Evaluating the mediating role of information sharing between the main drivers and performance in the Moroccan automotive supply chain

(pages 604-614)

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Keywords: supply chain management, integration, information sharing, performance, automotive industry.
Abstract: Companies are reaping the advantages of integration mostly through information sharing. The main goal of this study is to develop an empirical model based on results from Meta Analytic Review, in order to explain the impact of five explanatory variables from existing literature (Trust, Legal Contract, Commitment, Power, IT Capacity) on Financial and Non-Financial Performance via the mediating variable (Information Sharing) across the Moroccan Automotive Supply Chain. The choice of the Moroccan Supply Chain is based on the very limited and underdeveloped existing literature. To feel this gap, we conducted a questionnaire on a sample of 100 employees working in 'Tangier Automotive City'. Using SPSS 28.0 software, we attempt to verify the reliability and validity of the measurement scales. Subsequently, we proceeded to test the hypotheses via the structural equation modelling method with the help of the Smart PLS software. The results show the effect of the studied variables on sharing of information. They also show how important sharing information is for improving supply chain performance. This research fills a vacuum in the literature by using real-world examples from a developing nation and giving Moroccan managers useful advice on how to improve cooperation in the supply chain.

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Barriers to digital transformation in industrial, transport and logistics enterprises: empirical evidence from Kazakhstan

(pages 615-623)

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Keywords: digital transformation, digital readiness, industry, logistics, Kazakhstan.
Abstract: Paper addresses the problem of systemic barriers to digital transformation, in logistics flows and supply chain management, which hinder the integration of digital technologies into material, information, and financial flows. The aim of the study is to empirically identify and analyze these barriers in industrial, transport, and logistics enterprises in Kazakhstan. The novelty of the research lies in specifying how barriers manifest in a transition economy and in demonstrating their impact on logistics flows and supply chain management. The empirical foundation of the research is a questionnaire survey conducted among 57 enterprises in the real sector of the economy, including industry, transport and logistics, construction, and information and communication technologies. The collected data were analyzed using descriptive statistical methods and interpreted within the broader context of industrial paradigm evolution, from Industry 4.0 toward the human-centric and sustainable Industry 5.0 model. The empirical material of the study reflects the cross-sectoral nature of digital transformation, encompassing production, logistics, management, and information processes within end-to-end digital ecosystems, as revealed through the survey of 57 enterprises in diverse industries. The results indicate that enterprise-level digitalization is still confined mainly to basic automation and fragmented adoption of digital tools, whereas integrated and intelligent solutions remain scarce and underdeveloped. Key barriers to digitalization emerge at the intersection of economic constraints, human capital limitations, organizational-managerial weaknesses, and technological challenges. The most prominent constraints include the high cost of digital solutions, persistent shortages of digital competencies among personnel, and insufficient strategic understanding of the potential benefits of digitalization.

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Floating car data for urban traffic flow analysis: a case study of Olomouc

(pages 624-635)

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Keywords: floating car data, traffic jam, traffic flow, HERE Traffic API, Olomouc.
Abstract: This paper examines the potential and limitations of floating car data for the spatiotemporal assessment of urban traffic congestion in a medium-sized city. Using traffic flow data obtained from the HERE Traffic API, the study analyses congestion patterns in Olomouc, Czechia, with a focus on daily trends, hourly variations, changes on selected specific days, and the spatial distribution of congestion across road segments. The data were collected at 15-minute intervals and aggregated to identify recurring traffic patterns and deviations associated with holidays, school-related changes, and pandemic restrictions. The results show that aggregated floating car data provide a robust basis for identifying recurrent congestion patterns, peak periods, and problematic road sections within the city. At the same time, the analysis demonstrates that single-day anomalies are often difficult to interpret without additional contextual information. The study confirms that floating car data are a useful source for medium-scale urban traffic monitoring, logistics planning, and comparative assessment of congestion, although their explanatory value is constrained by limited transparency in the underlying data generation process and by the absence of direct traffic counts.

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ERP–GPS integration for enhancing traceability and delivery performance in logistics operations: a case study

(pages 636-643)

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Keywords: logistics operations, information systems, ERP–GPS integration, logistics traceability.
Abstract: Logistics companies increasingly face traceability and delivery performance challenges due to limited interoperability between enterprise resource planning (ERP) systems and global positioning system (GPS) technologies. Fragmented information environments restrict real-time visibility, generate data inconsistencies, and delay operational decision-making, particularly in last-mile distribution contexts characterized by high variability. This study evaluates the impact of ERP–GPS integration on logistics traceability and delivery performance through a quantitative single-case study. A structured Triple-I (Input–Process–Output) framework was applied, combining documentary analysis, Value Stream Mapping (VSM), performance indicator measurement, and scenario-based simulation to compare operational outcomes before and after system interoperability. Results demonstrate a 22.4% reduction in average delivery lead time and an increase in On-Time-In-Full (OTIF) performance from 67.2% to 85.4%. The integration eliminated manual confirmation procedures, reduced route deviations, and improved traceability completeness through real-time data synchronization. Beyond measurable performance gains, the findings highlight digital interoperability as an operational capability that enhances coordination between planning and execution functions. The study confirms that ERP–GPS synchronization represents a technically feasible, scalable, and cost-effective pathway toward Logistics 4.0 implementation, supporting data-driven decision-making and operational resilience in logistics service environments.

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Oil price regimes under geopolitical crises: implications for logistics cost management and supply chain planning

(pages 644-653)

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Keywords: oil price volatility, geopolitical risk, logistics costs, fuel surcharge management, supply chain resilience.
Abstract: This paper examines how geopolitical crises and macroeconomic conditions shape oil price behaviour and discusses the implications of these dynamics for logistics costs and supply chain planning. Using annual data for 1990-2022 and a Markov regime-switching framework, the study identifies distinct regimes in oil price, oil production, oil consumption, oil reserves, GDP, and inflation. The results indicate that oil-market dynamics are state-dependent rather than stable over time, with high-stress regimes associated with higher oil prices, higher inflation, and relatively persistent transition probabilities. The contribution of the paper is not to claim a direct causal measurement of logistics performance, but to provide a structured interpretation of oil-market regimes as different fuel-cost environments that may affect fuel surcharge design, contract adjustment, routing decisions, procurement planning, and supply-chain resilience. Because the analysis relies on 33 annual observations and does not include direct logistics indicators such as freight rates or bunker surcharges, the findings should be interpreted as exploratory and conceptually grounded rather than definitive. Even so, the results suggest that regime-aware monitoring may help logistics managers respond more effectively to geopolitical and macroeconomic instability.

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