3rd INTERNATIONAL CONFERENCE ON PROBLEMS OF LOGISTICS, MANAGEMENT AND OPERATION IN THE EAST-WEST TRANSPORT CORRIDOR

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ABSTRACT

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Evaluating distribution and influence of a scientific idea using citation network.

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Abstract. The paper examines the issues of evaluating the relevance of a scientific idea, its impact on other fields of science, and its distribution over time and geography using citation network. At the same time, the issues of evaluating the scientific idea and the identification of its real author are considered. Scientometrics analysis such as determining the weight and impact of the scientific idea in the area where it is spread using citation network are carried out.
Keywords: citation network, citation analysis, scientific idea, scientometrics, bibliometrics, impact factor

Dilbar Alizada (Institute of Information Technology), Nargiz Abdullayeva (Institute of Information Technology), Sevinj Mardanova (Institute of Information Technology), Firudin Asgarov (Institute of Information Technology) and Rahila Hasanova (Institute of Information Technology, Baku Higher Oil School). *Identification problems and their solution in academic databases.*

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Abstract. The article lists the problems associated with the identification and representation of researchers and scientific institutions in international academic databases. These problems are mainly found in the profiles of researchers with the same or very similar names and surnames, as well as researchers whose names and surnames are translated into a foreign language in several variations. The solution of these issues will have a positive impact on the scientometrics performance of the researcher and scientific institution.
Keywords: scientometrics, WoS, Scopus, Google Scholar, ORCID, identification, academic database

Volodymyr Vasyanin (Institute of Telecommunications and Global Information Space of NASU, Kyiv, Ukraine) and Liudmyla Ushakova (Institute of Telecommunications and Global Information Space of NASU, Kyiv, Ukraine). *Problem of Building Circular Routes for the Delivery of Discrete Goods in the Transport Network .*

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Abstract. The paper formulates a mathematical model of the problem of constructing circular routes for the delivery of discrete goods in the transport network. The types of costs of real transport processes, which should be taken into account in the formation of the target function of the routing problem with a heterogeneous fleet of vehicles, are discussed. The possibility of solving the formulated problem with the help of well-known packages of mixed and integer linear programming is noted.
Keywords: problems of combinatorial optimization, mathematical models, circular routes of vehicles

Ilgar Mamedov (Institute of Control Systems of The Ministry of Science and Education of Republic of Azerbaijan) and Aynura Abdullayeva (Military-Scientific Research Institute of Azerbaijan National Defense University). *VIBRATION PROBLEMS ARISING DURING THE TRANSPORTATION OF GOODS AND THEIR MATHEMATICAL MODELING IN THE EAST-WEST TRANSPORT CORRIDOR .*

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Abstract. The East-West transport corridor passing through Azerbaijan, being one of the main transport and logistics centers in the region, is the shortest transport route connecting Europe and Asia and is important in cargo transportation between Europe and the China-Kazakhstan border. Since Azerbaijan is located in a seismically active zone, a number of problems may arise when transporting goods. These problems show the relevance of mathematical modeling of vibration processes. The presented work substantiates the boundary value problem for the three-dimensional integro-differential Bianchi equation, which adequately describes vibration processes.
Keywords: transport, corridor, vibration, problems, Bianchi, equation

Hikmet Mirzeyev (Institute of Economics of Ministry of Science and Education of Azerbaijan Republic). *The state of domestic and foreign investment in the economy of Azerbaijan and incentive instruments of foreign countries in attracting foreign investment in post-conflict regions.*

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Abstract. The article provides information about the statistical analysis of foreign investments invested in our country, attracting foreign investments into post-conflict areas, the experience of foreign investments abroad, as well as incentive tools used in the experience of foreign countries. In particular, information was reflected on the growth of Japan's economic power after World War II and the Flying Geese model.
Keywords: 1. Post-conflict period, 2. Foreign investment, 3. Flying Geese, 4. Concessions, 5. Taxes, 6. Modeling tools

Ayten Aghayeva (Azerbaijani). *Assessing the economic impact of higher education: a review of measurement methods.*

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Abstract. The article provides a brief overview of various methods for measuring the economic efficiency of higher education. Cost-benefit analysis, return on investment (ROI), input-output analysis, value added analysis, rate of social return were also analyzed. In addition, the OECD study describes public and private investment in higher education.
Keywords: 1. Review, 2. Methods, 3. Cost-benefit analysis, 4. Rreturn on investment (ROI), 5. Input-output analysis, 6. Value added analysis, 7. Social rate of return

Ellada Khankishiyeva (Institute of Economics of Ministry of Science and Education of Azerbaijan Republic) and Matanat Abdalova (Institute of Economics of Ministry of Science and Education of Azerbaijan Republic). *Transport and logistics complex of Azerbaijan in the context of geopolitical problems of the modern world.*

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Abstract. The favorable geographical location of Azerbaijan, the implementation of large-scale projects and more efficient use of the potential of transit and cargo transportation provide excellent opportunities for a constant increase in income in this area and the growth of the country's authority on the world stage. In this regard, the article pays attention to the state and development of transport and logistics infrastructure. It is noted that the transport and logistics complex of Azerbaijan must be ready for changing geopolitics.

The article rightly states that improving the performance of the transport and logistics complex of Azerbaijan can be achieved through an integrated approach, including measures to improve infrastructure, optimize processes, use new technologies and improve the legislative framework.
Keywords: cargo transportation, transport hub, transit

Amirkhan Pashayev (Western Caspian University). *Globally important transport corridors and Azerbaijan.*

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Abstract. The article talks about investments in the tran¬s-port sector of Azerbaijan against the background of the start of activity of globally important transport corridors. Cargo and passenger flows, types of transport and investments in this area are discussed. Effective suggestions are made by analyzing the current situation.
Keywords: Transport sector, investments, cargo transport-ta¬tion, transport corridors

Mansur Madatov (Azerbaijan), Pervin Shukurlu (Azerbaijan) and Memmedeli Memmedrzayev (Azerbaijan). *A safe and affordable route.*

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Abstract. Transport corridors like TRACECA face a number of challenges, including delays and poor logistics services when crossing multiple country borders. In this regard, the creation of other levels of corridors become a necessity.

In order to solve these problems, the TBNM-Trans-Caspian International Transport Route, which is a continuation of the TRACECA project, has started functioning as a logistics corridor.

Azerbaijan's participation in huge transport initiatives such as "One Belt, One Road" and the construction of the Baku-Tbilisi-Kars railway line, as well as the commissioning of ports and highways that make the country one of the centers of the region, can be the basis for the future development of international trade and logistics.

By joining the "One Belt, One Road" initiative put forward by China, Azerbaijan actively participates in global integration processes.
Keywords: logistics, OBOR, transport routes, TRACECA, Baku-Tbilisi-Kars

Gulnare Kanberova (Nakhchivan State University). *THE SIGNIFICANCE OF THE ZANGEZUR TRANSPORTATION CORRIDOR IN THE PROSPECTIVE ARCHITECTURE AND URBAN DESIGN OF NAKHCHIVAN.*

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Abstract. In the modern period, like in the past, people communicate through roads.Roads that link various regions bring people of different races and nationalities together for their purposes, resulting in the establishment of bonds between them.Wars between various nations have disrupted these roads throughout history, resulting in in to the development of new settlements and administration centers in these areas, changing the course of these roadways. However, historic roads have been restored on occasion and remain in function.The revival of the Silk Road in the Third Millennium will serve as a bridge, boosting links between the East and West.As technology advances, high-speed rails and oil pipelines will replace the caravans that once traveled the Silk Road.The transit of oil and gas pipelines, as well as trains or highways, will reactivate the Silk Road in the region, maintaining security in the Caucasus and beyond.One such road is Zangezur, which was part of Azerbaijan in the beginning of the 20th century before being absorbed into the Republic of Armenia.After the Zengezurwas taken over by Armenia in 1921, the Nakhchivan region became isolated. After Soviet period, Nakhchivan has been under blockade for more than thirty years, with only relations with the Turkish Republic.The same time, Armenian leadership's land claims, as well as the closure of the Zangezur road, have resulted in the abandonment and deterioration of residential neighborhoods along the road.For many years, our national leader Heydar Aliyev has tried multiple times to resolve these issues by meeting with Armenian leaders, but to no avail; the Armenian side hindered the conclusion of peace agreements among countries. Despite Azerbaijan's peaceful attempts, Armenia maintained its occupation policy, which also resulted in the Zangezur road hitting a dead end. Despite all of the negotiations held following the Second Karabakh War, the Zangezur corridor remains closed.

The revival of the Silk Road via Zangezur will make optimum use of the natural, financial, and spiritual resources accessible from the East to West. Furthermore, it will facilitate the transition to a fresh phase of progress in agriculture, manufacturing, construction, civilization, literature, and art, thereby expanding interactions in these areas with different countries throughout the world. Furthermore, this approach will have an impact on the creation of new types of residential areas, as well as the preservation of Nakhchivan architecture and history.Establishing administrative hubs and manufacturing centers, settling residents, and promoting tourism will allow the region to stay up with other advanced regions.This study analyzes the significance of the Zangezur Road in the long-term development of Nakhchivan's architecture and infrastructure.
Keywords: Silk Road, Transport corridor, Restoration, City, Residential area, Tourism

Jeyhun Talibov (Baku Engineering University (BEU)) and Ali Mirza (Baku Engineering University). *Logistic analysis of classifications of mobile drilling and workover equipment for oil and gas wells on land.*

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Abstract. The utilization of pattern recognition is on the rise within comprehensive information systems. The convergence of advancements in image processing theory and the accessibility of open-source libraries enables the application of inventive solutions to diverse practical challenges. One such issue pertains to the automated processing of responses in extensive examinations. This paper introduces an engineered system explicitly crafted to manage the outcomes of such examinations, showcasing its capacity to deliver a dependable, efficient, and impartial assessment.
Keywords: classification, winches, hoisting units, mobile drilling complexes, logistics

Gunay Aliyeva (PhD). *Opportunities of innovation in logistic area of Azerbaijan: structural improvements and orientations strategic development.*

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Abstract. In the context of globalization of the world economy the need for logistics is growing sharply, because the globalization of the world economy and modern interstate global logistics systems lead not only to the optimization of the social division of labor and the sectoral structure of the economy of individual countries, but also to a reduction production and distribution costs at global level. From all this, both commodity producers and intermediaries with buyer's benefit. In particular, active economic cooperation between firms of individual countries and continents, including the exchange of the latest technical achievements and inventions contributes to integration in various fields of activity and convergence of the levels of economic development of individual countries.

In modern conditions, the development of the economy of the Republic of Azerbaijan requires the search for new ways to accelerate economic reforms, allowing the country to attract the most advanced achievements of science, technology, technology, as well as the organization of production and circulation management.
Keywords: structural improvement, strategy, logistics service

Timur Ismailov (reseacher) and Zahid Farrukh Mammadov (reseacher). *Conceptual approaches to use of natural gas as a motor fuel in various modes of transport (road transport, industrial transport, railway transport, sea transport) .*

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Abstract. Today, in the era of industrial and transport development one of the most important problems is providing the population with affordable and environmentally friendly types of fuel. In this case, the natural gas (NG) is one of the cleanest energy sources. Azerbaijan is a country with a highly developed energy sector.

In this regard, the use of NG as a motor fuel can ensure the availability of this resource for the population, as well as help improve the environmental situation in the region.

The country has already taken the first steps to switch transport to NG. However, in order to comprehensively solve the problem, it is necessary to carry out a number of strategic initiatives and prepare a number of program documents. It is these steps that will allow us to develop optimal approaches to the implementation of programs to convert transport to NG in order to develop new transport corridors and create infrastructure for the development of new regions.
Keywords: transport, natural gas, ecology

Isa Gasimov (Baku Engineering University), Telman Mustafayev (Innovative Technologies in Education Additional Education Center), Gunay Gasimova (Western Caspian University) and Kamala Huseynova (Western Caspian University). *DETERMINATION OF THE WORK SITUATION OF THE TRANSPORT COMPANY THAT SERVES TOURISTS .*

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Abstract. The purpose of the research is the correct division of labor among the employees of the enterprise for the maintenance of the vehicles in the transportation of tourists.

Initially, the number of tourists traveling by country was determined. The statistics of the means of transport used by tourists for travel have been analyzed. Based on the data of the Azerbaijan State Statistics Committee the number of vehicles serving tourists, the technical and current service to be provided to the vehicles, and the report of the work for the implementation of all processes was made.
Keywords: 1. transportation enterprise, 2. tourism, 3. division of labor, 4. transportation service

Isa Gasimov (Baku Engineering University), Telman Mustafayev (Innovative Technologies in Education Additional Education Center), Gunay Gasimova (Western Caspian University) and Kamala Huseynova (Western Caspian University). *DETERMINING THE TYPE OF TRANSPORTATION FOR TOURISTS USING MULTI-CRITERIA DECISION-MAKING METHODS.*

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Abstract. Tourism has become an increasingly important part of modern societies and its role in the global economy continues to increase. The main purpose of any transportation system is to ensure that the needs of passengers are met in the provision of transportation services. Furthermore, in the tourism industry, transportation is not only a means of transportation, but also essential in providing access to tourism resources, the development of tourist features and its overall attractiveness. It includes such factors. To do this, the type of transport must be determined correctly and the transport service must be provided correctly. In order to accurately determine the type of transportation and provide transportation services, it is necessary to understand the relationship between tourism and transportation, as well as the factors that are important to for tourists n transportation. In our study, we examined all aspects of tourism and transportation, with a focus on Azerbaijan. We will inform you in detail about the types of transport as well as their advantages and disadvantages.
Keywords: 1.Multi-criteria decision making, 2.TOPSIS, 3.Determination of transport type

Isa Gasimov (Baku Engineering University), Telman Mustafayev (Innovative Technologies in Education Additional Education Center) and Etibar Gahramanov (Baku Engineering University). *STEPS TOWARD TO GREEN FUTURE: CLIMATE CHANGE AND THE CARBON FOOTPRINT.*

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Abstract. Life in Azerbaijan is at an important turning point in terms of climate change and carbon footprint. This article discusses steps towards a greener future, aimed at raising people's awareness of climate change and carbon footprint issues in their daily lives. The article analyzes how people's habits and consumption choices in their daily lives affect their carbon footprint. Topics such as energy consumption, transportation habits and waste management are examined with a view to reducing one's carbon footprint, and readers are encouraged to become more aware of these topics. Therefore, the importance of taking steps towards a green environment is highlighted. The future of Azerbaijan is highlighted and pointed out that every individual, every institution and every society has responsibility in this direction. By raising awareness about climate change and carbon footprint, establishing sustainable habits and supporting environmentally friendly policies, Azerbaijan can take important steps to leave a healthy and sustainable environment for future generations.
Keywords: 1. climate change, 2. carbon footprint, 3. ecological footprint, 4. energy.

Isa Gasimov (Baku Engineering University), Bunyamin Seyidov (Institute of Philosophy and Sociology, ANAS) and Eun Joo Kim (STEPI - Science and Technology Policy Institute). *IMPACT OF KOREAN STI EXPERIENCE ON THE INNOVATION ECOSYSTEM IN AZERBAIJAN.*

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Abstract. In this article, the works the development of the knowledge economy, including the innovation ecosystem in the Republic of Azerbaijan, as well as the role of the Korean Science, Technology and Innovation experience in these processes are studied. The points arising from the STI policy in Azerbaijan were studied and their current results were investigated in the article. Along with this, the ODA projects implemented in Azerbaijan so far and currently ongoing, as well as the effects of these projects on the society and economy of Azerbaijan, were studied. At the end of the article, suggestions are given based on the obtained results.
Keywords: 1. Knowledge economy, 2. Innovation ecosystem, 3. Republic of Azerbaijan, 4. Korean experience, 5. ODA

Elnur Najiyev (Baku Engineering University). *Zangezur corridor: perspectives and problems.*

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Abstract. The Zangezur Corridor has very strategic importance, not only for Azerbaijan but also for the republics of the Caucasus region. This corridor is a 43-kilometer-long passage starting from the Nakhchivan border crossing and continuing to Azerbaijan. This corridor will make short connections between east and west, and will create new realities in the Caucasus region. This paper presents the perspectives and problems in the "Zangezur Corridor" issue by referring to the local sources of each state and making our own proposals in this direction.

Keywords: Zangezur Corridor, Azerbaijan, Russia, Turkiye, Iran, Armenia, European countries, Caspian region, Central Asia

Rahiba Abdulhasanova (Nakhchivan State University). *Implementation of innovation in the field of logistics for Azerbaijan.*

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Abstract. The following article explores the significant role logistics plays in the economy and its relationship to creative pursuits. The argument for implementing innovative logistics systems was presented, and the challenges associated with their management were examined. It was highlighted that each warehouse possesses distinct characteristics that are linked to the supply chain and manufacturing or logistics operations, making it essential for corporations to consult experienced professionals when implementing cutting-edge technologies.

The use of advanced logistics technologies is becoming increasingly prevalent and is rapidly evolving. Companies can enhance their competitiveness in the market by streamlining logistics expenses in Azerbaijan. The growth of the nation's logistics industry, fueled by creativity, demonstrates a promising future.
Keywords: Azerbaijan, logistics, innovation

Fazil Ismailov (Shamakhi Astrophysics Observatory) and Namig Dzhalilov (Shamakhi Astrophysics Observatory). *Mapping the soil-adjusted vegetation index and monitoring of its changes using landsat 9 images of the east - west transport corridor by indexing satellite images .*

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Abstract. This work uses the results of step-by-step preliminary and thematic processing of regional satellite images to construct index images Images and color scale of Soil Adjusted VI, SAVI for the Azerbaijan section of the East-West Transport Corridor. Regional features of soil and vegetation cover in various sections of the Transport Corridor were analyzed.
Keywords: East-West Transport Corridor, satellite monitoring, Remote sensing, Soil Adjusted VI

Gunay Hesenova (Azerbaijan) and Zumrud Nuriyeva (Azerbaijan). *The Impact of Carpet Weaving and Carpet Trade on the Transport Infrastructure along the Great Silk Road: History and Modernity .*

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Abstract. One of the greatest achievements of global civilization is trade. Since then, when, the process of social division of labor began, and trade historically became an independent branch of the economy, every century it gained and an extraordinary need and acquired a majestic and boundless area. Gaining an international character, trade opened up new and more extensive transport routes economically and culturally connecting the peoples of the East and West. This trend was facilitated by many important factors, including the development of carpet weaving and carpet trade. Today, world trade and the great trade communications that implement it, as in the past, are persistently breaking new routes for themselves. This article outlines the essence and significance of these processes, reveals the features of world trade, including the carpet trade, the importance of cultural and economic ties between the peoples of Asia and Europe, and also determines the purpose of trade routes and communications in past history and in modern civilization.
Keywords: carpet weaving, carpet trade, transport road, silk road, history and modernity, infrastructure

Naila Kardashbeyova (+994508926288) and Adila Guliyeva (+994504756356). *HARMFUL EFFECTS OF ROAD TRANSPORT ON THE ATMOSPHERE AND WAYS TO SOLVE THIS PROBLEM .*

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Abstract. The impact of Transportation on the environment is one of the most important topics of environmental safety,because the environment is the most important condition for our healthy living.However, many research scientists claim that the more types of Transportation there are-the more this process of pollution will continue.In modern times, it is impossible to imagine all developed countries without transport.The purpose of the article is to provide a clarification on the causes of air pollution in rural and urban areas. The main purpose here is to analyze the causes and consequences of air pollution of motor vehicles. At the same time, it is to suggest ways to eliminate them.Therefore, the topic of this article is quite relevant for today.
Keywords: carburetor, atmosphere, smog, ozone, disposal, concentration

Nasrin Aliyeva (Nakhchivan State University, Azerbaijani). *Optimizing Supply Chains: Logistics Management in the East-West Transport Corridor.*

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Abstract. The East-West Transport Corridor serves as a vital conduit for global trade, connecting markets across Europe and Asia. However, the efficient management of logistics within this corridor is beset by a myriad of challenges ranging from infrastructural inadequacies to regulatory complexities. This article delves into the intricacies of logistics management within the East-West Transport Corridor and presents strategies for optimizing supply chains to address these challenges. Through an in-depth analysis of key factors such as transportation infrastructure, customs procedures, and inventory management practices, this study identifies opportunities for enhancing efficiency and reducing bottlenecks along the supply chain. Drawing upon insights from industry best practices and innovative technologies, the article offers practical recommendations for stakeholders involved in the management and operation of the corridor. Emphasizing the importance of collaboration, digitalization, and process optimization, the proposed strategies aim to streamline logistics operations, improve reliability, and bolster the competitiveness of businesses reliant on the East-West Transport Corridor. By optimizing supply chains, this article advocates for a more resilient and agile transportation network capable of meeting the evolving demands of global commerce in the 21st century.
Keywords: supply chains, logistics management, east-west transport corridor, optimization, transportation, distribution, efficiency

Leyla Mehdiyeva (UNEC) and Gulsum Mammadova (UNEC). *PROBLEMS OF DEVELOPMENT OF CUSTOMS AND LOGISTICS INFRASTRUCTURE OF THE INTERNATIONAL TRANSPORT CORRIDOR "EAST - WEST".*

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Abstract. Abstract. The purpose of the work is to determine the key aspects of the influence of customs and logistics infrastructure on the patterns of changes in trade turnover between the countries participating in the East-West corridor. The relevance of the problem under study is due to the increased interest of the countries participating in the international transport corridor "East - West" in its further development and increase in the volume of mutual trade. Thus, ts scientific significance lies in the need for an integrated approach to the formation of the framework of the international transport corridor, combining the terminal and warehouse infrastructure into a single whole infrastructure, customs administration system and a range of services provided by logistics providers and customs intermediaries. Currently, there is no comprehensive understanding of the processes of organizing the movement of international goods flows, combining the issues of customs escort, development of terminal processing of cargo, integration of existing logistics infrastructure into the international transport corridor and ensuring the attractiveness of this route both for foreign companies using it as a transit route, and for enterprises aimed at exporting their products.
Keywords: International transport corridor East-West, integration, customs and logistics infrastructure

Mirelem Hasanli (UNEC) and Leyla Mehdiyeva (UNEC). *HARMONIZATION OF THE LEGISLATIVE FRAMEWORK FOR REGIONAL ECONOMY DEVELOPMENT ON THE WEST-EAST TRANSPORT CORRIDOR.*

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Abstract. The West-East transport corridor is a testing ground for cooperation and competition between business organizations. It is necessary to develop effective forms and methods of management and use them specifically on the transport corridor as a priority of the national economy. Secondly, we believe that it is necessary to consider the transport corridor as a transport and logistics system of a single business process.

Without developing a competitive environment, creating a modern logistics infrastructure, and without resolving issues of simplifying customs procedures, we will not be able to attract international transit to our transport corridors. Of particular importance is the formation of a legal framework for the work of all interested parties.
Keywords: Legal framework, Transport corridors, Economics, Transit

Tunzala Gurbanova (UNEC) and Mirelem Hasanli (UNEC). *PROBLEMS IN STAFFING THE OPERATION OF TRANSPORT CORRIDORS.*

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Abstract. The issue being considered today is extremely important for the economic development of Azerbaijan and its transport complex (system), as well as for the effective construction of a single balanced communication network on the European-Asian continent, ensuring multifaceted integration of the economies of partner states. The basis of the international transport corridor "West - East" is the railway connection between the countries of Western Europe and the Asia-Pacific region. The successful operation of this corridor will require the introduction of new, state-of-the-art technology, a radical reconstruction of the route, creative management mechanisms, and progressive methods of organizing the transportation process. Solving these problems will also require a significant strengthening of the personnel potential of transport enterprises, which today largely require new-generation specialists with a high level of professional training, as well as highly professional managers who ensure the effective interaction of various modes of transport and the logistical nature of the transportation process. This is a common task of government, business and educational institutions in the industry, which is the core of a long-term public-private partnership in the transport complex.
Keywords: Management mechanism, Human resources, International transport corridor.

Gulsum Mammadova (UNEC) and Tunzala Gurbanova (UNEC). *PRIORITY DIRECTIONS FOR THE DEVELOPMENT OF INTERNATIONAL TRANSPORT CORRIDORS.*

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Abstract. The geographical location of Azerbaijan makes it possible to open a direct route between the zones of creation and absorption of world cargo flows, since the routes of transit communications really correspond to the shortest geographical distances. Existing problems, insufficient development of transport infrastructure and a network of logistics centers, unreasonable delays in the control determination of cargo weight when crossing borders, and so on lead to significant delays in transport operations. As a result, lost time means not only lost money and customer trust, but also the loss of the main competitive advantage of transit transportation. The transport complex has always and everywhere been a system-forming factor of the economy, the basis for the economic and industrial development of territories. At sharp, crisis turns in history, transport ensured the restoration of the destroyed economy and the targeted and intensive development of basic industries.
Keywords: International transport corridor (ITC), Infrastructure, Socio-economic development

Ilkin Gasimov (Baku Engineering University), Mayis Azizov (Baku Engineering University), Mahmud Ismayilov (Azerbaijan State Oil and Industry University) and Isa Gasimov (Baku Engineering University). *An analysis of factors affecting the online shopping behavior of consumers: Evidence from Azerbaijan.*

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Abstract. The rapid development of technology influences consumer behavior and keeps it relevant. The purpose of this study is to investigate the factors affecting online shopping in Azerbaijan through a survey of 267 respondents. The study examines attitudes toward various aspects of online shopping and uses a one-way ANOVA test to analyze differences between groups of respondents. The paper aims to investigate the influence of socio-demographic indicators on the attributes of online shopping, such as shopping duration, expenditure, attitude toward innovation, and commitment to environmental sustainability. There is a significant difference in online shopping among respondents of different age groups. This study can also fill the gap in the existing literature on the factors influencing online shopping in the case of Azerbaijan.
Keywords: online shopping, consumer behavior, one-way ANOVA test, technology, Azerbaijan

Nijat Karimov (Azerbaijan) and Bakhtiyar Namazov (Azerbaijan). *The perspective of container transport along the East-West Transport Corridor.*

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Abstract. Purpose: The research object of this study is the container transportation of goods between the People's Republic of China and the countries of the European Union through the Middle Corridor. The purpose of the work is to analyze the perspective of the Middle Corridor and its importance for the region, to clarify the work done in this area, the problems, and the tasks ahead. The relevance of this topic is related to the existence of certain obstacles to the development of cargo circulation in this direction and the need to eliminate them.

Result: Factors affecting the efficiency of transportation in the Middle Corridor have been determined, the World Bank's research in this field, recent work, and results have been reviewed, and the perspective of the corridor has been evaluated. The study confirms the necessity of expanding transportation infrastructure and logistic management in Azerbaijan. It is confirmed that the new situation that has arisen in the region, which includes Azerbaijan, can lead to the prosperity of the countries in the region.

Practical importance: The obtained results confirm the important role of the countries of the region in increasing the economic relations between themselves and the distant countries connected by the corridor, the work that Azerbaijan and other countries can do in this field, and the upcoming tasks.
Keywords: Middle Corridor, container transport, logistics, China-Europe rout

Manaf Bagir-Zade (Baku Engineering University). *The Role of Global Digital Governance in the Provision of the East-West Transport Corridor: Azerbaijan's Current Advantages.*

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Abstract. Abstract – The realisation of new alternative roads in the East-West Transport Corridor and the functionality of these roads are related to the management approach and administrative structure. In this respect, the article examines the importance of the global digital governance approach in terms of obstacles that may occur in the transportation corridor. Globality and digitalization are the basic conditions of the subject under study. In the Second Karabakh War, Azerbaijan's successful retrieval of occupied lands and clearing of the Armenian structures that kept the region paralysed gave birth to the perspective of an alternative route for the east-west transportation corridor. Azerbaijan has governance and digitalization features that can play an important role in the functionality of the corridor. The study focused on the factors covering the governance approach of the corridor. An actor analysis of the subjects of the corridor was made and evaluated in the case of Azerbaijan.
Keywords: global digital governance, digital governance platforms, actor-network theory

Yusif Gasimov (Azerbaijan University), Rashad Mastaliyev (Azerbaijan University, Institute of control systems) and Asif Pashayev (Azerbaijan University). *Application of Decision-Making Expert Systems in Cargo Safety Risk Assessment.*

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Abstract. This article deals with the establishment of a decision-making expert system for selecting a rational version for cargo safety assessment system in transportation and the justification of mathematical methods based on the requirements. Assessment of the linguistic variability of the "Safety Degree for Cargo" was carried out using the statistical method of expert information, and the rules for using Matlab packages were set up to establish membership functions.
Keywords: decision-making, expert systems, cargo transport risks, fuzzy approach, multi-criteria optimization, Saaty's method

Asad Rustamov (Military Scientific Research Institute of the National Defence University), Vugar Mammadzada (Military Scientific Research Institute of the National Defence University), Ruslan Hashimov (Azerbaijan Navy Forces), Fikret Melikov (Azerbaijan Navy Forces) and Mukhtar Azizullayev (National Aerospace Agency,). *The Role Of Navigational And Hidrographical Support In Ensuring Security Of The Caspian Sea.*

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Abstract. In the article have been analyzed the main factors affecting the security environment in the Caspian Sea, the importance of the navigational and hydrographical support as an affecting factor, the existing navigational and hidrographical support's difficulties in ensuring security in the existing offshore oil and gas infrastructures, strategically important islands and coastal facilities in the part of the Caspian Sea belonging to the Azerbaijan Republic and the measures that must be taken according to the new challenges. Approaches and proposals have been given about necessity creating new Traffic Seperation Scheme, Reccomended Roads in order to realize ensuring the accomplishment of the special steering regime and navigational safety in all directions.

The accomplisment of the hidrographical support's importance also has been emphasazed against estimated navigational threats according to the context of the effective preventing in new fairways and recommended roads. Beside of realized activities in direction of increasing the effectiveness of the navigational support, has been focused on issues about increasing effectiveness of the hidrographical support.
Keywords: Caspian Sea, ensuring security of the transportation, navigation and hydrography, Trans-Caspian fiber optic route, Traffic Separation Scheme

Sheraz Mehmood (Western Caspian University). *Belt and Road Initiative and Global Politics.*

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Abstract. The Belt and Road Initiative (BRI), as initiated by the People's Republic of China in 2013, emerged as a transformative force in international politics and has its own importance not only for China and other countries but in International Relations and Global politics as well. This conference paper gets us into the multifaceted impact of the BRI on the global political landscape, its implications for economic dynamics, statecraft, and the structures of regional power.

The paper offers us a comprehensive overview of the Belt and Road Initiative, which has traces to its historical origins, its primary objectives, and the extensive network of infrastructure projects it carries with it. With a focus on the geopolitical dimensions, the analysis explores how the BRI has become a vital instrument in China's struggle to achieve an enhanced global influence and its implications in the future for the existing world order.

This paper also explores the responses and reactions of all the nations, and international organizations to the BRI, examining the strategic and economic considerations that shape their participation. Very detailed attention is given to the opportunities and challenges dispensed by the initiative, as well as the potentially important consequences for both participating and non-participating states, countries or regions

Moreover, the paper evaluates the BRI's impact on, trade patterns, economic development going on in the region, and global economic interdependence. It evaluates how the initiative is changing or revising traditional economic alliances and encouraging new partnerships, to understand, the evolving dynamics of international trade and investments.

While summarizing it, a thorough examination of the Belt and Road Initiative's International political ramifications, the conference paper appreciates the academic conversation about this initiative. It looks into the fact as how the initiative influences state-to-state relations, their economic structures, and their geopolitical alignments is to shed light on the complicated interactions between the BRI and the larger dynamics of modern global politics.

Keywords: BRI, GLOBAL POLITICS, GEO POLITICAL

Reyhan Huseynova (Azerbaijan Future Studies Society). *Advancing Transport Education through Electronic Simulator-Based Training.*

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Abstract. This paper investigates the efficacy of simulator-based training in enhancing transport education within the East-West Transport Corridor, focusing on road, rail, and sea transportation. The East-West Transport Corridor serves as a vital artery for trade and connectivity between Europe and Asia, facing unique challenges related to diverse terrains, intermodal logistics, and international regulations. Traditional methods of transport education often struggle to adequately prepare professionals for these complexities. Simulator-based training offers a promising solution by providing immersive, hands-on experiences that replicate real-world scenarios. Drawing upon empirical research, best practices, and insights from various resources, this paper explores the impact of simulator-based training on safety, efficiency, and decision-making in transport operations within the East-West Transport Corridor. It examines the latest advancements in simulator technology and pedagogy, as well as case studies and practical examples from the field.

Keywords: simulator-based training, transport education, East-West transport corridor, safety and efficiency, advanced driver assistant systems (ADAS), implementation challenges

Telman Aliev (Azerbaijani), Tofig Babayev (Azerbaijani), Gambar Guluyev (Azerbaijani), Narmin Rzayeva (Azerbaijani) and Rauf Gadimov (Azerbaijani). *WAYS TO IMPROVE THE SAFETY OF THE EAST-WEST TRANSPORT CORRIDOR WITH THE USE OF INTELLIGENT TECHNOLOGIES AND SYSTEMS.*

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Abstract. It is shown that at the present time increasing the degree of safety in rail transport requires an increase in the level of intellectualization of the relevant control and diagnostic systems. Here, first of all, it is necessary to create intelligent technologies for monitoring the beginning of the latent period of malfunctions both on the running gear of rolling stock and on the railroad bed, bridges and tunnels. Taking into account the particular importance of vibration diagnostics, an adaptive-intelligent system of vibration monitoring of malfunctions on rail transport is proposed. Here, the characteristics of useful vibration signal, vibration signal noise and interrelations between them are used as the main carrier of diagnostic information.

We also consider the possibility of building an "intelligent system for identifying the track hauls that require out-of-turn control of the railroad bed", the transmitting part of which is installed in one of the cars of rolling stock. The result of monitoring of railroad bed malfunctions through "means of communication" from the rolling stock is transmitted to the track hauls where the "malfunction detection system" by analyzing the received information for a day determines the hauls that need to be controlled out of turn.
Keywords: vibration control, diagnostics, transport, malfunction, accident, railroads, rolling stock, sensors, informative attributes, intelligent systems.

Cavanshir Zeynalov (Prof. Zeynalov), Huseyn Gasimov (Dr. Gasimov), Shahin Aliyev (Aliyev) and Gultaj Zeynalzade (Zeynalzade). *Monitoring of transport corridors using digital twin technology.*

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Abstract. the Industry 4.0 society, new technologies are constantly emerging in the field of information exchange. At the same time, traditional methods of cargo and passenger transportation still retain their relevance. In this context, transport corridors play the role of "blood vessels" of the world economy.

The article presents a proposed monitoring system based on the digital twin method for the purpose of ensuring unhindered and prompt traffic on roads and railways covered by transport corridors.

Within the framework of the proposed system, sensors of various nature are placed along the roads surrounding the corridor. Sensor data is transmitted to the monitoring center via satellite communication and stored in a database at the center.

An imaginary twin of the corridor is formed in the monitoring center. Information about the natural disaster, man-made accident, current weather conditions is visualized in the twin of the corridor. Detailed information about the changes is obtained on the basis of database information.

In addition to these, the coordinates of the problem along the corridor are sent to the Ministry of Emergency Situations and related institutions, as well as to the drivers moving along the corridor through the mobile application.

At the end, the result of checking the system in test mode is presented.
Keywords: Digital twins, Internet of things, Traffic monitoring, Sensors, Database management system

Tahir Gadjiev (Institut of Mathematics and Mechanics of NASA), Yasin Rustamov (Institute of Control Systems), Irada Dadashova (Baku State University) and Mehralı Aliyev (Architecture and Construction University of Azerbaijan). *Mathematical models of mineral waters of Azerbaijan.*

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Abstract. Azerbaijan situated in the east of the Caucasian region of the Alpine folding beltisrich in not only great oil, gas and mineral reserves, but in unique mineral water deposits as well. Nonetheless, exploration of new potable, mineral and thermal water sources persists as one of the vital targets of geological services of the Republic. The issue of efficient use of available water resource assumes, at the same time, more and more significant attitude. This article is dedicated to ways solve this problem. In addition, we consider the inverse problem of determining the temperature of geothermal waters as sources of temperature dependence on the surface. We are talking about those tasks in which it is necessary to determine the causes if the results obtained because of observation are known. For example, to determine the location and power of an earthquake from the oscillations measured on the surface of the earth. Or by the structure on the surface of the earth's minerals to determine the depth of their location underground, etc. When processing these experiments, a conclusion is drawn about the internal relationships of a phenomenon or process. When the mathematical model of the process under study is known, the problem of identifying the mathematical model is posed. In general, inverse problems are understood as tasks in which it is possible to draw conclusions in determining the parameters of this model from the available results of observations or other experimental information.
Keywords: geothermal, debit, mineral content, chemical, gradient, inverse problem, differential equations, mathematical model

Mozhgan Mansouri Kaleibar (University of Ljubljana, Faculty of Maritime Studies and Transport) and Evelin Krmac (University of Ljubljana, Faculty of Maritime Studies and Transport). *A Study on the Efficiency Assessment of Mediterranean Container Ports Using DEA.*

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Abstract. Ports are important hubs that connect land and sea transport networks and play an essential role in promoting trade and economic growth. The importance of ports in promoting trade and economic development is immense, so improving port efficiency is critical to a country's competitiveness and economic health. Improved efficiency not only increases a country's global market reach, but also encourages trade expansion, leading to higher income levels and greater prosperity. Mediterranean ports, which handle a significant amount of international trade, act as important channels for goods travelling through Europe, Asia and Africa.

Recently, Mediterranean ports have experienced a sharp increase in cargo volumes, which emphasises the importance of assessing the efficiency of ports in this region. Therefore, the main objective of this paper is to analyse the efficiency of these ports. This analysis aims to identify both high and low performing ports and uncover the factors that contribute to inefficiencies. To achieve this, the paper utilises advanced data envelopment analysis (DEA) techniques. The developed model is then applied to assess the performance of the ports. It is expected that the results of this study will help to improve the operational efficiency and effectiveness of the ports analysed. It is hoped that policy makers will utilise the knowledge gained from this assessment to develop sound strategies.
Keywords: Additive model, Mediterranean ports, Data envelopment analysis (DEA), performance evaluation, Port efficiency

Bahram Ismailov (Azerbaijan State Oil and Industry University). *Modeling processes for controlling the behavior of non-extensive systems.*
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Abstract. The article proposes a non-standard approach to the analysis, evaluation and control of the behavior of complex coupled chaotic systems with fractional dynamics interacting in an Open System. The results of studies using analytical and numerical methods for modeling and simulating the processes of system interactions at the meso-level in a non-monotonic space are presented. Using the example of intelligently connected systems, their connections are analyzed and collective behavior is modeled. The purpose of modeling is to find a satisfactory coherent state of interacting systems. The axiomatic of the Wireless Sensor Networks (WSN) is given in terms of a swarm system in combination with coupled non-linear hyper chaotic structures of fractional order. The evaluation of the results of interactions is given in terms of the Tsallis entropy, the visualization of the results of interactions is given in the form of recurrence plots.
Keywords: swarm-system, coherent states, thermodynamic-information, spectrum of the Poincare recurrence, transient models, Tsallis entropy

Mir Ramin Yunusov (azerbaijani). *The Role of Data Modelling in Various Modes.*

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Abstract. Data science has revolutionized official statistics production, automating the collection, processing, and analysis of extensive datasets. This adoption enhances report timeliness, depth of insights, and flexibility. However, the precision of data science-driven statistics relies on robust data sources and machine learning techniques. Inevitable changes in data sources pose significant risks, particularly in machine learning applications for official statistics. Addressing these risks is crucial for resilient and accurate statistical insights. Shifting focus to the transport sector's dynamic emergency landscape, this paper delves into the crucial role of data modeling in streamlining decision-making and optimizing response strategies. The exploration highlights data modeling's adaptability across logistical, scientific, and computational dimensions. Beginning with an overview of data modeling's organizational role, the paper addresses challenges specific to transport emergencies, exploring conceptual, logical, and physical data models' contributions to efficient emergency response systems
Keywords: Data Science, Official Statistics, Machine Learning, Data Modeling, Emergency Management, Transport Sector, Crisis Mitigation, Adaptive Data Models, Decision Support, Resilient Response

Ramin Zeynalov (Institute of Control Systems), Leyla Gadimova (Institute of Control Systems) and Lamiya Najafova (Institute of Control Systems). *To the assessment of pressure losses when transporting oil through pipelines.*

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Abstract. Management of transportation processes is directly carried out by means of a system approach to them, which, in turn, is related to their classification properties. The field of transportation research is associated with the study of complex and dynamic relationships. The complexity of the study is due to the need to analyze a large number of intertwined links in the transport system itself or in its subsystem, as well as links between the transport system and socio-economic environment. Taking into account the importance of the systemic study of various transportation processes, some aspects of the study have been considered, taking into account the peculiarities of these processes. Within the framework of uncertainty of influencing factors the problem of estimation of pressure losses on hydraulic friction under conditions of given dynamics of oil pipeline flow rate is investigated.
Keywords: Transportation processes, System approach, Classification, Uncertainty, Interval values

Hasan Alisoy (Nakhchivan State University). *The Potential of Smart Cities in Developing the Zangezur Corridor.*

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Abstract. This article investigates the envisioned role of smart cities in the development of the Zangezur Corridor, a proposed initiative aimed at enhancing East-West connectivity. It emphasizes how integrating smart technologies, including IoT and intelligent transportation systems, into urban infrastructure can significantly impact the corridor's logistical, management, and operational efficiency before its establishment. By examining potential applications and strategic innovations in smart transportation, the study offers insights into how smart cities can contribute to optimizing future corridor planning, ensuring seamless trade flow, and fostering regional economic growth in anticipation of the Zangezur Corridor.
Keywords: Zangezur Corridor, Smart Cities, IoT, Logistics Optimization, Intelligent Transportation

Imane Ahnouz (Mohammed V University, faculty of sciences,Department of physics, Rabat), Hanan Arahmane (Paris-saclay University, CEA, List, F-91120 Palaiseau) and Rajaa Sebihi (Mohammed V University, faculty of sciences,Department of physics, Rabat). *Machine learning based methods for neutron-gamma discrimination using scintillators.*

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Abstract. Neutron spectrometry using scintillation detectors is an increasingly popular technique for many different applications, including in the areas of non-proliferation and medical imaging. Scintillation detectors have high efficiency for detecting neutrons, making them suitable for a variety of different neutron energies. Additionally, these detectors are relatively inexpensive and simple in design, making them easy to maintain and use. However, there are several background radiations in the detection of these neutrons, including gamma radiation, which complicates the neutron detection process. In this context, various techniques have been proposed to discriminate neutrons from gamma radiation. This work presents state-of-the-art machine learning based methods for neutron-gamma discrimination using organic scintillation detectors.
Keywords: Neutron-gamma discrimination, Machine learning methods, Scintillation detectors

Petro Stetsyuk (V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine), Mykola Korablov (V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine), Oleksandr Stoian (Taras Shevchenko National University of Kyiv) and Oleh Hubernator (Taras Shevchenko National University of Kyiv). *Mathematical models for finding the shortest cycle to visit a given number of vertices from the graph clusters.*

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Abstract. Travelling Salesman Problem (TSP) is known for its numerous modifications and applications in different areas. Introduced in this paper are the problem of finding the shortest cycle through a given number of vertices from the graph clusters and two mixed integer linear programming (MILP) models for solving the problem. The first MILP model is based on the generalized version of Miller, Tucker and Zemlin constraints for standard TSP. The second model is based on the generalized version of Gavish and Graves constraints for standard TSP. Necessity and sufficiency of models constraints are proved. Results of a computational experiment are presented.
Keywords: Travelling Salesman Problem, Hamiltonian cycle, Mixed integer linear programming, AMPL, Gurobi, NEOS server

Sabina Bayramova (Azerbaijani). *Stress and Burnout in Logistics Managers: A Review.*
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Abstract. Intense work pace, constantly changing demands and global competition in the logistics sector increase the risk of stress and burnout for managers. This situation negatively affects both the health of managers and the performance of organisations. Steps should be taken at individual, organisational and sectoral levels to manage stress and burnout. At the individual level, it is important to learn stress management techniques, adopt a healthy lifestyle and strengthen the social support network. Organisations can support their employees through fair performance evaluations, flexible working models and stress management trainings. At the sectoral level, adding stress and burnout modules to logistics trainings and effective use of new technologies will contribute to minimising stress. In conclusion, a comprehensive and holistic approach is required to combat stress and burnout in the logistics sector. In this way, both the welfare of the managers and the sustainable success of the sector can be ensured. In this article, the concepts of stress and burnout in logistics managers will be discussed. Stress sources, burnout symptoms and the effects of these phenomena on managers will be examined. In addition, strategies that can be applied at individual and organisational level to manage stress and burnout will be presented.
Keywords: Logistics Managers, Stress, Burnout, Job Satisfaction, Performance

Dilbar Bahmanli (Azerbaijani). *Social-psychological analysis of the impact of accidents on the human psyche during transport using.*
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Abstract. Various preventable and unpreventable disasters occur in the world. One of the problems facing humanity today is the extreme situations that occur. Natural disasters and technological and human factors play an important role here. Technological and human factors are also involved in accidents that occur during the use of transportation. In this article, we will analyze the impact of accidents on the human psyche.
Keywords: Human, Transport, PTSD, Stress, Traumatic life, Extreme situations, Traumatic incident

Samina Rustamova (Nakhchivan State University) and Sariya Gasimova (Nakhchivan State University). *Defining human-machine collaboration in management and logistics with the integration of artificial intelligence.*
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Abstract. The article "Defining human-machine collaboration in management and logistics with the integration of artificial intelligence" explores the evolving landscape of management and logistics through the lens of artificial intelligence (AI) integration.

The article delves into the transformative impact of artificial intelligence (AI) on management and logistics, emphasizing the emerging paradigm of human-machine collaboration. It discusses how AI technologies are increasingly integrated into various facets of organizational processes, ranging from decision-making to supply chain management. Through case studies and theoretical frameworks, the article elucidates the synergistic relationship between humans and machines in optimizing efficiency, productivity, and strategic decision-making within management and logistics domains. Additionally, it likely explores challenges and opportunities associated with this integration, including ethical considerations, workforce reskilling, and organizational readiness. Ultimately, the article offers insights into the evolving nature of work and the imperative for organizations to adapt to the AI-driven future by fostering collaborative environments that leverage the strengths of both humans and machines.
Keywords: AI technologies, human-machine collaboration, decision-making processes, management, logistitcts

Telman Aliev (the academician of Azerbaijan National Academy of Sciences, Doctor of Technical Sciences, the professor), Naila Musaeva (Doctor of Technical Sciences, professor) and Matanat Suleymanova (Institute of Control Systems). *Technologies for assessing the reliability of the operational state of facilities in transport corridors.*

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Abstract. It is shown that a transport corridor comprises trunk transport communications, as well as numerous centers and organizations that regulate its operation. It is shown that failure of one of facilities in a transport corridor reduces the reliability of the entire system and increases the risk of accidents. Analysis of this problem shows that monitoring of a transport corridor involves monitoring the technical condition of each of the facilities separately. Therefore, special technical devices and sensors are installed for each facility. Noisy signals coming from these sensors consist of a useful signal and a noise. These noises can be both correlated and not correlated with the useful signal. In the first case, the presence of a noise indicates a malfunction in the technical condition of the facility. In the second case, the emergence of noise is due to a change in the influence of external factors in the operational state of the facility. In this case, different operational states are associated with different levels of danger of transition of the facility to a non-operational state corresponds. A change in the external factors is indicated by the characteristics of the useful component of the noisy signal. In this regard, we propose technologies for determining the level of danger of transition of the facility from an operational state to a non-operational state. For this purpose, algorithms are developed to calculate such characteristics of the useful signal as variance, distribution law and high-order moments. Technologies for determining the early period of change in external factors, creating a knowledge base and building a model of the operational state of a transport corridor facility are developed. It is noted that the use of the results of monitoring of the transition of the facility from one operational state to another can reduce the risk of possible defects, malfunctions and accidents, ensure control over the durability and increase the reliability of transport movement.
Keywords: Transport corridor, noisy signal, useful signal, variance, distribution law, high-order moments, knowledge base, model of operational state

Reyhan Akhmedova (Western Caspian University) and Nigar Mirzaghayeva (Western Caspian University). *Theoretical review of the psychological aspects of women`s caracteristics in the transport industry.*

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Abstract. This research aims to evaluate how gender roles affect women's labor by articulating with the patriarchal social structure, and what stages women's labor has gone through in the world, through basic concepts and historical plane. The main claim of the study is that the biggest factor why doing a job that is attributed to men poses various difficulties for women is traditional gender roles. However, another claim of the study is that if positive discrimination principles are applied and equality of opportunity is provided, women can successfully perform the profession by overcoming the difficulties arising from gender roles. Working conditions within the scope of the research; It was evaluated together with data on wages, working hours and unionization. Physical and psychological disorders resulting from working life were examined specifically in the bus driving profession. The difficulties encountered in working life were analyzed on the basis of gender and the differences between being married and single women in working life. In the conclusion of the study, information about the theoretical discussion and data from the field research were synthesized. It draws attention to the importance of applying the principle of positive discrimination and providing equal opportunities for women in order to break down gender roles.

Keywords: gender roles, women's labor, urban transportation, women bus drivers, transportation sector

Elshen Najafov (Nakhchivan State University) and Sayyad Veliyev (Nakhchivan State University). *Implementation of Unified Transport and Logistics Strategy in Azerbaijan.*

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Abstract. In recent decades, transport corridors have become an important component of geo-economic and geopolitical paradigms in the world.

The dynamic development achieved in recent years in all spheres of public life in Azerbaijan has led to a significant increase in the country’s role at the geopolitical level. In addition to all this, it has become a necessity to actively participate in the socio-economic processes taking place in the global economic space, to effectively access foreign markets, and to have a competitive national industry.

With the aim of turning Azerbaijan into the trade center of the region, logistics centers covering the regions are being created, and the capabilities of the shipyard and commercial port are being expanded. In addition to all this, highways are being built, railways are being rehabilitated and constructed, and cargo transportation by sea and air is being significantly increased to ensure the smooth movement of cars and trains with bordering countries.

All the work done will result in an increase in access to Europe and Asia, and will further strengthen Azerbaijan's active participation in international transport-communication and corridor projects.
Keywords: Infrastructure projects, Transport corridor, Railway, Transport, Logistics

Mahsati Asgarova (Rafiq). *Are the Belt and the Road project an alternative to historic Silk Way?*

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Abstract. Asia, Europe and beyond… This paper critically examines whether the Belt and Road Initiative (BRI) constitutes a viable alternative to the historic Silk Way. By synthesizing existing literature and analyzing empirical data, the paper evaluates key aspects such as infrastructure connectivity, trade facilitation, cultural exchange, and geopolitical implications. Through a comparative analysis of the historical Silk Road and the contemporary BRI, the paper explores similarities, differences, challenges, and opportunities. It considers the socio-economic, environmental, and geopolitical factors shaping the BRI's effectiveness as a modern-day Silk Way. The findings contribute to a nuanced understanding of the BRI's role in reshaping global trade dynamics and its potential to serve as a transformative force akin to its ancient predecessor. Moreover, the analysis sheds light on the broader implications of the BRI for international relations, regional development, and global governance in the 21st century.
Keywords: Belt, and, Road, Initiative, Silk Way, Chine, Europe, Asia

Gunay Rahimli (Azerbaijan State University of Economics (UNEC)), Yadulla Hasanli (Azerbaijan State University of Economics (UNEC)) and Elman Ibishov (Azerbaijan State University of Economics (UNEC)). *Estimation of the impact of transport sector on the economy in Azerbaijan: multiplier models.*

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Abstract. In this study, the direct and indirect effects of the investments allocated to the development of transport on 25 sectors were evaluated through the multiplier models built based on the input-output table and the social accounting matrix (SAM) for the economy of Azerbaijan. The results of both models were analyzed and compared. The research shows that the multiplicative effects of investments directed to the transport sector estimated with multiplier model based on SAM was greater than the effect estimated using input-output model. The main reason for this is that in the SAM multiplier model, along with intermediate consumption, the multiplier effects of added value and net export are also considered. However, these effects have been of a different nature in the mining industry and in the field of scientific research and development. The main reason for this is that the services of these fields are paid mainly at the expense of imports (software expenses, fees paid for scientific articles, etc.).
Keywords: transport, input-output, SAM, multipler effects, investment

Huseyn Gasimov (Dr. Gasimov), Seadet Zeynalova (Zeynalova) and Shafiga Imanova (Imanova). *The method of determining the degree of perspective of specializations in the logistics sphere.*

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Abstract. The development of any sphere depends on the level of knowledge and skills of people working in that sphere. In order to become a highly qualified specialist, a necessary condition is to study in a correctly chosen specialty.

In the presented article, in the context of the personalization of education, a support system is offered to applicants for choosing a more promising specialty in the areas covered by the logistics sphere.

For this purpose, first of all, the working principle of the algorithm for choosing a more promising specialty, the mathematical guarantee of the problem is presented. A number of possible alternatives are offered for the correct selection of applicants. The set of criteria that are the basis for the evaluation of alternatives is described, the scale of criteria and the decision-making scheme for obtaining a more accurate result are defined.

At the next stage, using statistical reports and Internet resources, the change in the perspective of professions for specialties covering the logistics sphere is determined.

At the end of the article, the experiment and the obtained results are presented comparatively.
Keywords: criteria scale, set of alternatives, decision making scheme, competence coefficient of experts, logistics, multi-criteria assessment, changing labor market

Kozin Igor (Zaporizhzhia National University), Kozina Galina (National University "Zaporizhzhia Polytechnic") and Narzullayev Ulugbek (Samarkand branch of the Tashkent University of Information Technologies). *Fragmented Metaheuristics for Combined Transport Logistics Problems.*

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Abstract. The problems of transport logistics related to finding the optimal route are considered. However, as a rule, such tasks contain several constraints. These may be constraints on the carrying capacity of vehicles, the run length without refueling, the operating time of the vehicle, the time of delivery of cargo to the consumer, the number of vehicles, and some others. Moreover, these constraints can be imposed either individually or in various combinations. Such problems are called combined problems of transport logistics. Most of these problems are NP-hard [1]. Separate methods are proposed for each type of problem. The article proposes a universal approach to modeling such problems using oriented fragmentary structures. This approach makes it possible to apply many well-known metaheuristic optimization algorithms on a set of permutations to search for suboptimal solutions to the problem.
Keywords: vehicle routing problem, fragmentary model, fragmentary algorithm, metaheuristics

Serhii Kurkula (Zaporizhzhia National University), Nataliia Maksyshko (Zaporizhzhia National University) and Dmytro Ocheretin (Zaporizhzhia National University). *Analysis of the development of the global electric vehicle market using cluster analysis.*

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Abstract. In recent decades, electric vehicles have become an integral part of the fast-growing automotive industry, representing a key element of an environmentally sustainable transport future. Against the background of rapid expansion, it is important to analyze the development of the global electric vehicle market in order to understand its structure, dynamics and prospects. In this work, we will consider two approaches to the analysis of the dynamics of the electric car market: the first approach - based on cluster analysis - is designed to identify key trends in the dynamics of the markets of different countries, the second is a phase analysis, which will make it possible to identify cyclical dynamics, as well as to evaluate the characteristics attractors (quasi-cycles) and their features in each group of countries.
Keywords: electric vehicle market, dynamics of sales volumes, time series, phase analysis, cluster analysis

Andrzej Czerepicki (Warsaw University of Technology Faculty of Transport) and Maciej Kozłowski (Warsaw University of Technology Faculty of Transport). *Development of the Warsaw electric bus cycle.*

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Abstract. European cities are currently experiencing a period of intensive development of electric urban transport. Among these developments are solutions involving the conversion of older diesel-powered buses to electric propulsion. Poland is at the forefront of European electric bus manufacturers. However, the implementation of electric buses in cities requires a thorough analysis of traffic conditions. There are known cases where fleets of electric buses could not operate properly in low temperature conditions. This poses a significant threat to the efficiency of public transportation. Therefore, the aim of the work presented in this article is to develop a driving cycle for the design of electric bus propulsion systems in urban transportation, with a schedule that corresponds to the operating characteristics of the capital city of Warsaw. The article will present a methodology for collecting data characterizing the routes of buses operated by MZA Warsaw (Miejskie Zakłady Autobusowe) and their analysis in terms of characteristic statistical features. An attempt will be made to develop a shortened version of the schedule that will represent the most important statistical features of operational routes. This representative Warsaw cycle can be subsequently utilized in the design of bus propulsion systems for the city of Warsaw.
Keywords: Electric bus, Urban driving cycle, Operation, Statistical modeling

Ulviya Quliyeva (Baku Engineering University), Gulbice Zahidova (Baku Engineering University) and Leyla Zeynalli-Huseynzade (Baku Engineering University). *Security and Privacy Concerns in Digitalized Cargo Transport: A Comprehensive Analysis .*

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Abstract. Digitalization has revolutionized the logistics industry, particularly with the rise of digital freight platforms. These platforms offer significant benefits such as increased efficiency and transparency, but they also introduce new security and privacy challenges. This paper provides a comprehensive analysis of the security and privacy concerns associated with digital freight platforms, focusing on potential threats and vulnerabilities that can compromise the integrity of cargo transport operations.

The article contextualizes the role of digital freight platforms in modern logistics and describes the key factors driving their adoption. It then examines the specific security and privacy challenges these platforms face, such as data breaches, unauthorized access, and the potential for malicious actors to disrupt supply chain operations. The article identifies and evaluates existing solutions and best practices to mitigate these security and privacy challenges.

This includes an examination of encryption techniques, access control mechanisms, secure data sharing protocols, and regulatory compliance measures. Based on this analysis, the paper concludes with a set of recommendations for stakeholders in the cargo transport industry to enhance the security and privacy of digital freight platforms. These recommendations aim to enable stakeholders to leverage the benefits of digitalization while safeguarding sensitive information and ensuring the secure and efficient movement of goods.
Keywords: Digitalized Cargo Transport, Security Concerns, Privacy Concerns, Cargo Tracking

Fuad Dashdamirov (Azerbaijan Technical University), Turan Verdiyev (Azerbaijan Technical University), Ulvi Cavadli (Azerbaijan Technical University) and Royal Allahverdiyev (Azerbaijan Technical University). *Specific mobility problems of regional cities of Azerbaijan and their solution using simulation software.*

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Abstract. The article describes the specific problems of mobility of cities located in different regions of Azerbaijan. General and specific difficulties in the operation of the transport system that arise during the operation of public transport, parking systems in cities, and the organization of vehicle traffic on city streets are considered. Research shows that cities have both similar and different problems and this is due to factors such as the topography of the city, employment of the urban population, the level of tourist visits, etc. The work examines the growth trend in the number of vehicles in regional cities. Possible measures to improve the conditions of movement of the population are being considered. Options for solving travel problems taking into account the characteristics of cities are shown. The experience and importance of using simulation programs in solving urban mobility problems is explained. Examples of proposed solutions have been tested using simulation models created in PTV VISSIM.
Keywords: mobility, public transport, parking, simulation, region cities

Zarina Bashirova (Azerbaijani). *The impact of artificial intelligence on the development of students and schoolchildren's intellectual potential.*

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Abstract. The development of the intellectual potential to bring an individual up in accordance with the requirements of modern times is considered one of the necessary issues. However, there are many problems remaining unsolved in this field. The intellectual potential encompasses learning, conducting research, mastering knowledge independently, the ability of solving problems, analyzing, comparing, generalizing, proving, planning, drawing proper conclusions, etc. By improving the intellectual potential of students, abilities of creating self-confidence, thinking, getting used to novelties quickly, adapting easily to environment, socializing, in-creasing vocabulary and so on could be developed. The improvement of the intellectual potential is based on the formation of personality and the traning of high qualified personnel in the future.
Keywords: Artificial intelligence, education, intellectual potential, development, technology, students, children, method

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Abstract. Assessing seismic vulnerability is of crucial importance in establishing the degree of resilience of existing buildings to earthquakes. Unfortunately, the northern region of Morocco has witnessed several devastating earthquakes in recent years, resultant in loss of life and considerable material damage. Al Hoceima is in an area characterized by intense seismic activity, where the terrain displays slopes ranging from 10 % to 40 %, in this context, the major objective of the present study is to strengthen our understanding of the inherent seismic vulnerability of irregular architectural structures when subjected to seismic loads.
Keywords: Irregular structure, Pushover analysis, RPS2000

Fikrat Feyziyev (Sumgait State University) and Maral Mekhtiyeva (Baku State University). *SOLUTION OF THE SYNTHESIS PROBLEM FOR SOME CLASSES OF BINARY MULTIPARAMETER NONLINEAR MODULAR DUNAMIC SYSTEMS.*

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Abstract. A problem of synthesis the 3D – and 4D – binary nonlinear modular dynamical system with fixed memory, limited connection and a given degree, which descripiton in form of two valued analogue of Volterra’s polynom is considered. The synthesis problem is reduced to a matrix-vector for. When the input sequences of the system satisfies the orthgonality conditions, an algorithm for solving the problem is given. If the input sequences does not satisfy the orthoqonality conditions for solving the problem, a technique based on the use of special orthoqonal input sequences is proposed.
Keywords: 3D and 4D nonlinear problems, nonlinear modular dynamic system, Volterra’s polynomial, conditions of orthogonality

Aynura Hajiyeva (phd, assistant professor), Vafa Dunyamaliyeva (Phd, assistant professor) and Firuza Mirzayeva (senior lecturer). *IMPROVING THE MARKETING MANAGEMENT OF THE AGRO-FOOD MARKET.*

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Abstract. Without the introduction of marketing as a new management concept in enterprises and farms engaged in the production of agro-food products, it is impossible to talk about the adaptation of these enterprises and farms to the market and produce based on market requirements. In order for enterprises and farms to adapt to market? The necessary information on production and sales activites must be obtained from the market and market activity must be managed on the bases of this information. The information also allows you to make adequate decisions on marketing management of the market at the micro and macro levels, depending on the market situation and capacity. İn the article he issues of marketing management of the conjuncture and capacity of the agro-food market were studied by the authors.
Keywords: Agro food market, market capacity, agriculture, marketing management.

Asif Abdullayev (Nakhchivan State University). *The Transcaucasian corridor in entrepreneurship: impact on the competitiveness of regional enterprises.*

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Abstract. The Transcaucasian Corridor, which has a strategic location between Europe and Asia and a large part located in Azerbaijan, serves as an important route that promotes trade and economic integration. Acting as an economic link between east and west, this corridor facilitates the cross-border movement of ideas, innovation, and trade and has a significant impact on regional entrepreneurship. Azerbaijan's diversified economy: non-oil sectors such as agriculture, tourism, and technology strengthens its economic potential. Active participation in major projects such as the "ONE WAY ONE BELT" project emphasizes the important role of Azerbaijan in regional and global economic integration. Leveraging the corridor's advantages, such as access to global markets, logistics efficiency, and infrastructure development, offers numerous opportunities for regional businesses to expand and develop. Additionally, the sustainable economic development of the region is strengthened by the adoption of green economic practices and renewable energy initiatives. As a result, the Transcaucasian Corridor is emerging as a transformative force that offers diverse economic opportunities and stimulates dynamic regional growth. The region will experience more sustainable economic development if infrastructure, innovation, and sustainability are effectively invested in.
Keywords: Transcaucasia, Green economy, One road one belt, Logistics, Competitiveness, innovation

Rza Akhundov (Western Caspian University). *"China's 'Belt and Road' Initiative introduces fresh dynamics of global rivalry in the South Caucasus.".*

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Abstract. China's Belt and Road Initiative (BRI) has markedly reshaped the economic landscape globally, with the South Caucasus region emerging as a significant beneficiary and focal point of this transformation. Through substantial investments in infrastructure, China has bolstered its economic and political footprint in the area, positioning the New Silk Road as a pivotal element in redefining the role of the Caucasus nations within the spheres of global commerce and transportation networks. Nonetheless, this assertive expansion has ignited apprehensions among various countries and global entities, wary of China's ascending dominance. Consequently, the South Caucasus has morphed into an arena for international rivalry, as diverse global actors, including the United States and the European Union, intensify their involvement by proposing alternative investment opportunities and partnerships. This evolving scenario necessitates a strategic equilibrium of interests and the pursuit of diplomatic avenues to guarantee the region's sustained growth and stability.
Keywords: China BRİ, South Caucasus, Economic interests, Political interests.

Mirhamid Baghirov (Azerbaijan). *The role of advanced regulation (green wave) in the global fight against climate change: Baku observed (Azerbaijan).*

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Abstract. Climate change is causing serious consequences today with the development of automobiles. Traffic congestions, especially at intersections, cause vehicle delays, which has a serious impact on climate change. İn the fight against the consequences of climate change, especially in the direction of eliminating traffic jams in non-peak hours, the reduction of delays caused by this type of traffic jams with the use of artificial intelligence researched in the article. Connected with this, a “Green wave” graph has been created in the peak hours of the day on Academic Zarifa Aliyeva Street in Baku, the capital of Azerbaijan Republic. A recommended speed of 50 km/h with a 95% confidence interval determined by artificial intelligence on the mentioned street for the construction of the “Green wave” set.

Keywords: Baku city, intersection, Green Wave

Nabi Kurbanov (Head of the Department of Mathematical Analysis and Function Theory Sumgait State University), Vusala Babajanova (Azerbaijanian), Ulviya Aliyeva (Senior lecturer of the Department of Mathematics and the methodology of its teaching Sumgait State University) and Kamala Agamaliyeva (Sumgayit State University). *Constructing Approximate Solution to the Problem of Vibrations of Viscoelastic Systems.*

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Abstract. The paper deals with a boundary value problem of vibrations of a viscoelastic system that are described by Volterra type partial integro-differential equations. Here we propose an approach using the Laplace integral transform, which allows to construct a solution to the integro-differential equation in the form of a series, the first term of which is the solution to this equation obtained by the averaging method. For a specific kernel, the effectiveness of this approach is shown, and the influence of various parameters of the equations and initial conditions on the error of the obtained solution is evaluated.

Keywords: viscoelasticity, kernel, rheology image, original, Volterra equation, integral transform

Elchin Alibeyli (Nakhchivan State University). *İndicators characterizing the role of transport in regional management infrastructure development.*

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Abstract. Transportation plays a pivotal role in shaping regional development by facilitating the movement of goods, services, and people, thereby influencing the efficiency and effectiveness of management infrastructure. The multidimensional relationship between transport and regional management infrastructure development is examined in this article through an examination of indicators. A thorough literature research and empirical analysis are used to identify important indicators, such as sustainability, accessibility, dependability, and connectedness in transportation. The research investigates how these metrics show how transport networks are integrated with regional management infrastructure, taking policy frameworks, resource distribution, and spatial planning into account. Through the assessment of these indicators, decision-makers and planners can learn about the advantages and disadvantages of transport networks in relation to regional management infrastructure. This information can then be utilized to inform decision-making procedures that are intended to improve overall development results. This study adds to our understanding of the complex interactions that exist between regional management infrastructure and transport, providing important new information for sustainable regional development plans.

Keywords: Transportation, Regional development, Mobility, Infrastructure, Efficiency, İndicators

Khayala Seyfullayeva (Sumgait State University). *Boundary Control Problem for the Equation Vibration of a Thin Plate.*

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Abstract. In this paper, we consider a boundary-value problem with boundary control for the equation of vibrations of the thin-plate. It is known that many practical problems are described by the equation of oscillation of a thin plate, but the controllability problems with this equation have almost never been studied. One of these questions is investigated in the present work. After determination the controllability, by introducing an auxiliary boundary value problem and using the result of the Han-Banach theorem, the controllability of the system under consideration is proved

Keywords: oscillation equation, thin plate, boundary control, weak solution, controllability, observability

Murad Yusifov (Institute of Control Systems of Ministry of Science and Education of Azerbaijan Republic). *ECONOMETRIC ASSESSMENT OF OPTIMAL INTEREST BURDEN: CASE STUDY FOR AZERBAIJAN AND TÜRKİYE.*

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Abstract. In this paper, levels of interest burden maximizing profits of banks and tax revenues were estimated separately by using polynomial regression. To find the differences between Azerbaijan and Turkiye, the comparative analysis was conducted in this study. The study revealed that the level of interest burden for the Republic of Türkiye, which maximizes the profitability of the banking sector is estimated at 7.97%, but providing the maximum level of Tax revenues is at the level of 6.91%. However, these levels of interest burden for the Republic of Azerbaijan were found at 2.0% and 1.63% respectively. To ensure fiscal, monetary and prudential policy compatibility, it is necessary to consider the gaps between the interest burdens which provides the maximum level on the both directions. Determining the general pattern on a long-term basis and conducting additional analyses would further improve the results.

Keywords: Interest burden, profit of banking sector, polynomial regression, optimality, tax revenues

Heybetulla Ahmedov (Azerbaijan Technical University), Jeyhun Aslanov (Azerbaijan Railway) and Jamil Gasimov (Azerbaijan Railway , Demiryolservis LLC). *Analysis test result of kz8a and kz4at series electric locomotives planned for operation on Azerbaijan railways.*

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Abstract. Summary. The article reflects the technical characteristics and analysis of the test results Kazakhstani freight and passenger electric locomotives of a new generation of the K8ZA and KZ4AT series, which are developed according to the technology of a French company and are produced in Kazakhstan. An overview of the production and operation of electric locomotives this class abroad, including in Europe, is given. Certification and acceptance tests electric locomotives were carried out, which include vibroacoustic tests, sanitary and environmental tests, as well as checking the level of electromagnetic radiation. Tests of the electric locomotive were completed under the conditions of the climatic chamber, which confirmed the operability outdoor equipment in the range from -50 to +45 °C. A comparative analysis of the characteristics first Kazakh electric locomotives of the KZ8A and KZ4AT series shows that these locomotives are very economical in terms their life cycle, have higher traction characteristics, increased overhaul runs in comparison with electric locomotives this class. On the basis of the Kazakh electric locomotive of the KZ8A series, a modification of the AZ8A freight electric locomotive for Azerbaijani railways was developed.
Keywords: electric locomotives, technical indicators electric locomotives, technological development

Ali Gojayev (Azerbaijani) and Hazi Eynalov (Azerbaijani). *Analysis of factors affecting the consumption of food products purchased through e-commerce.*

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Abstract. Recent years have seen a notable increase in the consumption of food goods through e-commerce platforms, driven by shifting consumer behaviors and technological improvements. This study explores the many elements affecting the ways in which food products bought online are consumed. This paper investigates important factors like price, product variety, convenience, trust, and perceived quality through a thorough analysis of the body of existing literature and empirical data. Additionally, it investigates the effects of demographic factors on consumer preferences in the e-commerce food industry, such as age, income, and profession. The study provides useful implications for e-commerce retailers, and marketers looking to improve consumer pleasure and spur growth in the digital food sector. It does this by drawing on insights from consumer behavior theories and empirical data. It is essential to comprehend these elements. In this paper, it aims to investigate the factors that influence the behavior of consumers who buy products online, the attitudes formed against these factors and the relationship of these attitudes with demographic variables. To achieve this goal, an online survey was conducted among 162 people via Google Meet. The data obtained through the survey was analyzed and the findings were evaluated.
Keywords: consumer behavior, e-commerce, online consumer, online shopping, food consumption

Turkan Alibeyli (Nakhcivan State University) and Huseyn Gasimov (Nakhchivan State University). *The role of Artificial Intelligence and Machine Learning in the optimization of transport corridors.*

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Abstract. The rapid advancement and application of Artificial Intelligence (AI) and Machine Learning (ML) have led to significant developments across various industries and business sectors. Additionally, utilizing AI-based pioneering technologies is one of the most crucial demands of the modern era for enhancing efficiency in the transportation sector. It is essential to identify methods of utilizing these technologies to create rapid improvements in eliminating traffic congestion and ensuring more reliable travel times for users.

Artificial Intelligence methods used in optimizing transportation tunnels include Artificial Neural Networks and Genetic Algorithms. Moreover, in this research, we will explore the role of machine learning in optimizing transportation tunnels and the basis of this process. Utilizing machine learning technologies in traffic control and management can reduce congestion and

complexity on roads. Additionally, machine learning algorithms can ensure more efficient utilization of tunnels by passengers.

Overall, the utilization of AI and ML methods in transportation tunnel optimization provides innovative and efficient solutions to address modern challenges in the transportation sector.

Keywords: Artificial Intelligence (AI), Machine Learning (ML), transport corridors, algorithm, traffic control

Elshan Ibayev (Institute of Control Systems of The Ministry of Science and Education of Republic of Azerbaijan) and Konul Omarova (Institute of Control Systems of The Ministry of Science and Education of Republic of Azerbaijan). *On Application Of A Semi-Markov Random Walk Process In Logistics.*

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Abstract. In this work, we will investigate a semi-Markov random walk process for warehouse management in logistics. We consider generating function for a boundary functional for semi-Markov random walk process. By the generating function we can find moments the distribution of warehouse level over time in the context of a semi-Markov random walk process. The random variable is introduced. This random variable representing, the number of steps required to reach a positive level. Here the length of each step follows a gamma distribution. The generating function of the distribution of the random variable is expressed as an integral equation. The purpose of the paper is to reduce the fractional order integral equation to a fractional order differential equation. Finally, the paper aims to derive an explicit form of the generating function.

Keywords: Generating function, random variable, semi-Markov random walk process, Weyl fractional integral

Abbas Rzayev (Institute of Control Systems of MSERA) and Rena Əsədova (Institute of Control Systems of MSERA). *A METHOD AND A DEVICE FOR DETERMINING THE TEMPERATURE VARIATION OF THE UPWARD RESERVOIR FLUID FLOW IN THE TUBING OF THE OIL WELL.*

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Abstract. Abstract: Using a comprehensive approach, a system analysis of studies in the field of heat transfer and temperature distribution along the length of oil production wells (along the height of the tubing) is given. A new method of determining the temperature of the upward reservoir fluid flow along the height of the tubing and a device for its implementation are proposed.

It is shown that as the temperature decreases along the height of the tubing, the probability of asphaltene-resin-paraffin deposits (ARPD) increases, leading to complications in the operation of the oil production well (OPW); new mathematical models are proposed for determining the temperature distribution (TD) along the height of the tubing, taking into account the coefficients of heat transfer from the rising fluid flow to the inner wall of the tubing and from the outer wall of the tubing to the medium of the annulus (between the tubing and production casing (PC)), temperature gradient in the liquid and gas layer of the PC.
Keywords: Heat exchange, heat transfer, temperature distribution, algorithm, thermal conductivity, mathematical model, asphaltene-resin-paraffin deposits

Alexandr Shimanovsky (Belarusian State University of Transport), Elbey Aslanov (Azerbaijan Technical University), Pavel Sakharau (Belarusian State University of Transport) and Volha Dzemyanchuk (Belarusian State University of Transport). *Influence of the characteristics of inter-car connections on the railway vehicle dynamics at some transient modes of operation.*

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Abstract. There is considered the modeling of transient movement modes of railway trains on the basis of their model in the form of a one-dimensional system of solid bodies. The computational results of longitudinal forces in a freight train are obtained for the case of the locomotive electrodynamic braking. It is shown that at the increase of the coefficient that determines the draft gear compression rate effect on the force in the automatic coupler the lower values of maximal forces and compression are realized. The use of a smooth increase in the locomotive braking force makes it possible to reduce the values of forces in inter-car connections significantly. It is also shown that the use of one-dimensional models does not allow to explain the significant difference in the values of forces observed at the during shift of the located at the station train, fixed by brake shoes.
Keywords: transient movement modes, draft gear, electrodynamic braking, longitudinal forces, shift of the train, shift force

Hacı Mustafa Paksoy (Gaziantep University), Murat Karahan (Gaziantep University) and Fatma Kılıç (Gaziantep University). *DIGITALIZATION IN THE LOGISTICS SECTOR AND ITS IMPORTANCE IN TERMS OF GREEN LOGISTICS.*

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Abstract. Nowadays, the logistics sector is becoming increasingly complex, and environmental sustainability is gaining in importance as environmental awareness and studies in this direction increase. In this context, digitalization appears to be an important factor enabling some changes in the logistics sector. Furthermore, the concept of green logistics is becoming increasingly important, as the reduction of environmental impact and the efficient use of resources are the cornerstones of a sustainable future.

Developing new technologies and digital systems makes it inevitable for companies to go digital in their logistics activities to gain a competitive advantage. This study will discuss digitalization activities in the logistics sector and the importance of this digital transformation in green logistics. While digitalization is a powerful tool to optimize logistics processes, increase efficiency, and reduce environmental impact, green logistics aims to reduce logistics operations' environmental impact to increase environmental sustainability.

In summary, this study aims to investigate how far digitalization has progressed in the logistics sector, in which phases these activities are effective, and to create a conceptual framework for green logistics. It then aims to explain the importance of green logistics activities and digitalization in green logistics within the context of digitalization.
Keywords: Digitalization, Green Logistics, Logistics

Yegana Ashrafova (Baku State University, Institute of Control Systems). *Optimization of source parameters in transport networks .*

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Abstract. This study centers on optimizing parameters related to concentrated sources that impact the functioning of transport networks. The transport network is composed of multiple one-dimensional objects, each following by a system of ordinary differential equations with nonlocal boundary conditions to characterize their states. The sources exert influence on specific points within these objects and their connection points. The goal of the optimization process is to identify the best locations and power levels for these sources, guided by predefined criteria for target functional. We establish the necessary optimality conditions for the parameters of concentrated sources.
Keywords: Transport networks, sources, placement of sources, non-local conditions

Parvin Guliyeva (Education). *Carriage of Goods within the Country.*

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Abstract. The article is about the transportation of goods by road transport. The rapid construction works in our country, the increase in the number of the population, and our improved regions increase the need for freight transportation services within the country. In addition to following the rules of transportation, it is very important to fulfill the customer's requirements, meet and satisfy his expectations. But it is necessary to take into account that in this competitive environment, entrepreneurs or enter.

prises (public or private) engaged in cargo transportation activities must also monitor the technical operation of the used vehicles in addition to fulfilling all these requirements. At the same time, depending on the transported destination, the working mode of the driver should also be taken into account.

Depending on the types of cargo, determining the means of transport that will be met with minimum costs, the exact study of the parameters of the cargo, whether it is expedited, etc. data should be recorded, taking into account all this, a suitable vehicle should be assigned. For the transportation of expedited cargo, it is necessary to have the possibility of transportation under special conditions.
Keywords: transport, freight, cargo, packing, evaluation, customer, information, software, enterprises, requirements, labor force

Marcin Szczepanek (Maritime University of Szczecin), Oleh Klyus (Maritime Univeristy of Szczecin) and Jerzy Cisek (Krakow University of Technology). *Reduction of toxic compounds emissions from diesel engines powered with recycled fuels.*

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Abstract. Drive engines in diesel locomotives should meet Euro Stage V exhaust emission standards. This standard reduces the content of particulate matter in the exhaust gases of rail vehicles and other vehicles by as much as 40% compared to the Euro Stage IV standard. These restrictions pose a real challenge for combustion engine manufacturers and vehicle operators. All the more so because the technical capabilities of the combustion engine to meet these requirements are very limited. Exhaust gas treatment systems play an important role in this aspect. However, these solutions are expensive and complicated. An alternative may be to use recycled fuels to power engines.

The article presents preliminary research results on the impact of feeding a compression-ignition engine with a mixture of diesel oil and recycled PP/PE fuels using the catalytic depolymerization method on reducing the content of toxic compounds in exhaust gases.
Keywords: exhaust emissions, self-ignition engine, synthetic fuels, reduction of toxic exhaust components

Oleh Klyus (Maritime University of Szczecin), Marcin Szczepanek (Maritime University of Szczecin), Jerzy Cisek (Krakow University of Technology) and Slawomir Olszowski (University of Radom Radom,). *Application of Acoustic Emission in Diesel Engines Diagnosis.*

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Abstract. The analysis of the processes taking place in the cylinder of a compression-ignition engine shows a high dependence of the ecological and economic parameters of its operation on the fuel atomization process. The parameter of mean droplet diameter (SMD, Sauter) used for this purpose can be used to assess the quality of fuel atomization, but its determination is only possible during laboratory tests on special stands. The article proposes a combination of testing the spraying quality with measuring the size of the acoustic emission signal originating from the elastic waves accompanying the spraying process. The relationships between the Suter diameter and the acoustic signal level obtained in this way can be used directly on the running engine. In the experimental tests, the laser diffraction method was used to measure the spray quality using the Spraytec device from Malvern. A relationship between the values of the Sauter diameter and the energy of the acoustic signal was obtained, on the basis of which a method was developed for assessing the quality of the fuel atomization process in compression-ignition engines by measuring the acoustic signal recorded during the fuel injection process
Keywords: Sauter mean diameter, acoustic emission, diesel engines, fuel injection, atomization

Viktor Stovba (V.M. Glushkov Institute of Cybernetics of the NAS of Ukraine) and Olha Khomiak (V.M. Glushkov Institute of Cybernetics of the NAS of Ukraine). *Two-Stage Transpotation Problem with Unknown Consumer Demands: Consistency Aspects.*

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Abstract. A mathematical model of a two-stage transportation problem with unknown consumer demands and their lower and upper bounds is studied. The necessary and sufficient conditions for consistency of the constraints system of the linear programming problem, which corresponds to this model, are formulated, and justified. The classical two-stage transportation problem is given, to which the above problem is transformed if consumer demands are known, as well as the consistency conditions for constraints system of the problem. Modification of the initial model that permits product transportation only to the fixed number of consumers, which is less than their total number, is given.
Keywords: two-stage transportation problem, linear programming problem, constraints system consistency

Kamil Aida-Zade (Institute of Control Systems) and Azer Baghirov (Institute of Control Systems). *Investigation and Solution of One Class of Nonlinear Optimization Problems.*

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Abstract. This paper examines a special class of nonlinear programming problems. The problem is characterized by 1) nonlinearity of the objective function and functions defining constraints of the equality type; 2) large dimension of optimized variables; 3) sparseness of the Jacobian matrix of equality type constraints. By applying graph theory to the problem of obtaining constructive formulas for the gradient of the objective function. The obtained formulas made it possible to propose a gradient projection method for a numerical solution.
Keywords: nonlinear model, graph, subgraph, optimization, gradient of the function

Flora Kerimova (Behlul). *LEGAL REGULATION OF TRANSPORTATION IN TOURISM.*

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Abstract. Legal regulation of transportation in the tourism sector is an important issue. Legal regulation of transport is necessary to ensure safe and orderly travel of tourists, to improve the quality of transport services and to create a fair competitive environment in the sector. These rules are usually made by the government and are defined by various laws, regulations and standards. Legal regulation of transport in tourism is essential to the sustainable development of the sector and to ensure a safe and pleasant travel experience for tourists. These regulations aim to ensure that all stakeholders in the sector work in harmony and maximize the economic, social and environmental benefits of tourism.
Keywords: Tourism, transport, legal regulation, legislation, state regulation, tourist safety

Adıgözəl Məmmədov (Qərbi Kaspi Universiteti). *The essay explores the historical and cultural underpinnings of the unity among the peoples linked by the Great Silk Road.*

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Abstract. he essay explores the historical and cultural underpinnings of the unity among the peoples linked by the Great Silk Road. Authored by Adgezal Nuri oglu Mammadov, a faculty member at the West Caspian University's Faculty of International Relations in Azerbaijan, this study elucidates the historical and cultural roots of Eurasian unity. It delineates the fundamental tenets of the contemporary Eurasian concept while suggesting a methodological framework for investigating social development processes within the context of Eurasian integration. Additionally, the research identifies global centers of Turkic appeal and delineates the risks of radicalization and politicization in Central Asia. It caters to both the scholarly and expert communities, addressing the socio-political challenges of Eurasian integration.

The geopolitical landscape of world politics in the new millennium has undergone significant transformations. It is evident that any political or economic strategy lacking a systematic grasp of the geopolitical realities of a given region will yield flawed outcomes and indifference. Acknowledging the imperatives of modernity, this factor has become integral to the foreign policies of leading nations. Concurrently, within post-Soviet realms, shared approaches to pivotal regional and global political matters are gradually emerging.
Keywords: 'Eurasian integration', 'Turkic-speaking populations', 'historical and cultural interconnectedness'

Eltun İbrahimov (Phd in Economics) and Ashraf Alekberov (Phd in Economics). *Developing innovation ecosystem to accelerate digital transformation in the economy.*

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Abstract. The integration of innovation and digitalization has been one of the topics of considerable attention in recent years in all sectors. Both concepts have great implications for business success. It is an accepted fact that an innovation ecosystem needs to be developed for the digital economy. Digital transformation primarily increases labor productivity in the economy and, as a result, makes an important contribution to growth. In today's increasingly competitive world, the main factor that concerns companies and businesses is which technologies and methods are most effective to use to accelerate digital transformation.

The article deals with technologies considered important for digital transformation and shows the experiences of companies that use them. Artificial Intelligence, Cloud Computing, Blockchain, Big Data and Analytics, 5G Technology, Quantum Computing, and Cybersecurity are considered famous technologies all over the world. In addition, how digital transformation affects the growth of businesses, the sectors that benefit from digitalization, and the challenges that arise in this direction are also discussed. It also briefly examines the agile business methods that companies use today to maximize productivity and optimize workflow.
Keywords: innovation ecosystem, digital transformation, business, digital transformation models, Quantum Computing, Blockchain, 5G Technology, Big Data

Aghalar Aghalarli (Western Caspian University). *Creating Favourable Environment to Stimulate Trade Volume through Middle Corridor.*

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Abstract. In the global landscape of trade, corridors serve as vital arteries for the flow of goods, connecting regions and driving economic growth. Among these, the Middle Corridor emerges as a promising pathway, linking Europe and Asia through a network of transportation routes. This paper delves into the critical aspects of fostering a conducive environment to enhance trade volume along the Middle Corridor. Through a comprehensive analysis of economic, infrastructural, and policy factors, it highlights the key challenges and opportunities faced in leveraging the corridor's potential. The paper identifies strategic measures to overcome barriers, including regulatory harmonization, infrastructure development, and trade facilitation initiatives.
Keywords: economic corridors, regulatory harmonisation, multilateral cooperation, transportation infrastructure, logistics

Mykola Zhurbenko (V.M. Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine). *Implementation of non-smooth optimization algorithms for logistics problems.*

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Abstract. The paper presents experience in using non-smooth optimization algorithms to solve problems of long-term planning of the functioning and development of transport systems. The class of problems under consideration is formulated as mathematical programming problems. Mathematical models are characterized by high dimensionality and block structure of constraints. The solution method is based on the use of effective non-smooth optimization algorithms in combination with decomposition methods. As a rule, solving a problem consists of two stages. At the first stage, a dual problem is solved regarding general constraints that contain variables from various blocks of constraints. At the second stage, the solution to the initial problem is determined. Numerical aspects of this approach to solving applied logistics problems are discussed. A brief description of recently developed subgradient algorithms is given.
Keywords: Optimal Planning, Mathematical Model, Non-Smooth Optimization, Numerical Efficiency

Valida Hajiyeva (Nakhchivan State University). *THE CLASSIFICATION AND APPLICATION OF INNOVATION BASED ON TECHNOLOGICAL PARAMETERS.*

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Abstract. In the article, the main goal of the application of the latest achievements of scientific and technical progress and the use of technological equipment, as well as the formation and use of scientific and technical information resources, is the integration into world information, the creation of the market of information products and services. In terms of the starting innovation activities in the country, the use of scientific and technical information (SIT) resources and increasing the efficiency of their activities, the formation of modern innovative network technologies in the country in order to further facilitate the use of SIT, the formation of the information culture levels of SIT users and specialists are the reasons that affect the improvements of innovation. The goal of implementing a strategy that provides active competitiveness on the basis of advanced technology and through technological improvement of the economy, as well as turning scientific potential into one of the main means of economic growth, is indicated as the main reason for the formation of a balanced sector of innovation activity and an effective innovation system. It is considered necessary to create centers for the building of new products using the achievements of scientific and technical progress.
Keywords: National innovation, integration, active competition, information resources, advanced technology

Vasyl Gorbachuk (V.M.Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine), Maksym Dunaievskyi (V.M.Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine), Seit-Bekir Suleimanov (V.M.Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine), Viktor Godliuk (V.M.Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine) and Dmytro Rybachok (V.M.Glushkov Institute of Cybernetics of the National Academy of Sciences of Ukraine). *The Danube basin as the hich-tech East-West transport corridor.*

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Abstract. The current state of the Danube basin was historically formed under the significant influence of Ukraine and its Western neighbors. Successful international cooperation is a key to achieving Ukraine's strategic goals in security policy, good-neighborliness, and Euro-Atlantic integration. In such cooperation, an economic component is important, for the implementation of which transport corridors, in particular the waterways of the Danube basin, are important. As a full member of the Danube Conference of 1948 and the corresponding Danube Commission, Ukraine has broad institutional opportunities to use the waterways of the Danube basin in its interests. The presence of Ukraine on the Danube River means direct interaction with at least 18 other European states of the basin, as well as indirect interaction with almost all the richest countries in the world, taking into account the presence of the Main − Danube waterway with a total length of 677 km linking the North and the South of Europe. The maintenance of natural waterways, the exploitation of existing waterways and the creation of new waterways require appropriate social and state institutions capable of international competition and cooperation. Integrated management of water resources requires a holistic and comprehensive system analysis based on modern technologies.
Keywords: linking the North and the South, network, modern technologies, supply chain, gateways

Nahid Jafari (State University of New York - Farmingdale). *Toward an Analytical Technique for Evaluating Alternative East-West Supply Chain Routes through Azerbaijan.*

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Abstract. Ensuring the establishment of resilient and sustainable supply chains for goods and energy between Europe and Asia is imperative, given the extensive geographical distance, geopolitical intricacies, economic challenges, environmental impacts, and the need for embracing cutting-edge technology. Azerbaijan's strategic importance in this regard lies in its positioning between two continents and its intersection with vital North-South and East-West transport routes. The conflict between Russia and Ukraine has further intensified the focus on Azerbaijan.

The primary focus of this study is to recognize the key factors and subfactors crucial for facilitating the efficient movement of goods and energy supplies across the South Caucasus region, which is a strategic component of the Trans-Caspian International Transport Route (TITR). The identified factors serve as variables for assessing the two alternative routes within the TITR: the Baku-Tbilisi-Kars (BTK) Railway and the Zangezur Corridor. The proposed analytical framework assesses the Geopolitical, Resilience (Infrastructural and Societal), Economical, Environmental, and Technological (GREET) factors the must be considered in decision-making and strategic planning concerning the future of global trade in the region. After collecting data, we will employ a factor rate analysis method to quantify the assessment and evaluate the two alternative East-West supply chain routes through Azerbaijan.
Keywords: Azerbaijan, Zangezur Corridor, Baku-Tbilisi-Kars Railway, Middle Corridor, Supply Chain, Freight Transport

Iwona Michalska-Pożoga (Koszalin University of Technology). *Intelligent transport systems.*
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Abstract. The economic and civilization development, the increase in the wealth of citizens, the need for mobility and the increase in the population of cities resulted in a significant increase in the number of vehicles. In connection with the above, it caused many negative economic and non-economic effects, namely: long waiting periods for vehicles to enter cities, thus extending the travel time, increasing the number of collisions and the costs of removing their effects, lack of parking spaces and deterioration of parking conditions, primarily in large urban agglomerations, as well as increased environmental pollution, etc. All the progressing changes described above made it necessary to create systems to mitigate the negative effects of these changes. The answer to this problem was the idea of creating an Intelligent Transport System (ITS). These systems use the achievements of technologies such as electronics, telecommunications and information technology and combine them with transport engineering in order to plan, design, operate, maintain and manage transport systems. The main advantage of intelligent systems is reacting to existing road situations in real time on the basis of analyzing and processing the collected data and selecting adequate means to control this situation.

Keywords: road transport, intelligent transport systems (ITS), traffic engineering, information and communication system, smart city

Tahira Hagverdiyeva (Azerbaijan) and Khayala Jamalova (Azerbaijan). *Study of production of adhesive material and concrete modified with natural component containing SiO2.*
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Abstract. The possibility of obtaining a natural mineral-active supplement containing SiO2 of ultra pomegranate on the basis of Umbaki quartz sand, located in the territory of the Republic of Azerbaijan, was determined experimentally. It was determined that when this type of additive is used up to 8-10% of the cement consumption, the compressive strength limit of cement-sand systems increases by 7.9%, the flexural strength limit by 4.35%, and the average density increases by 1.46%. With the complex use of ultra pomegranate SiO2-containing mineral additive, superplasticizing and hyperplasticizing additives, these indicators increase even more Modified heavy concrete composition with a compressive strength limit of 43 MPa, an average density of 2379 kg/m3, a compressive strength limit of 49.70 MPa, a fiber concrete composition with SiO2-containing natural mineral admixture and a superplasticizer additive of pomegranate with an average density of 2403 kg/m3, a compressive strength limit of 59 MPa, average density of 2475 kg/m3, fiber concrete composition with SiO2-containing natural mineral additive HP 777 hyperplasticizer was processed.

Keywords: adhesive material, natural component, superplasticizer, hyperplasticizer, concrete, fibroconcrete

Gulush Nabadova (Baku Engineering University, Institute of Control systems). *Controlling the movement of hexacopter along the intended route.*

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Abstract. The article examines the issue of controlling the movement of a hexacopter-type unmanned aerial vehicle along the intended route. The movement of the hexcopter is assumed as the movement of a solid body, gravity and aerodynamic drag forces are taken into account. It is assumed that the feedback data during control (accelerometer and gyroscope data) ise obtained from MPU6050 type sensors. MPU6050 type sensors do not measure orientation angles, but their rate of change, therefore, quaternions were used as orientation parameters in the mathematical model of hexocopter movement. In this article, the movement route is described as a trajectory consisting of straight sections, and an algorithm for calculating the base values of the control parameters is given, which ensures stable flight in each straight section of the trajectory , when all the engines of the hexocopter are working normally. During the study, the issue of ensuring straight-line movement of hexacopters when any of the hexacopter engines is faulty (out of order) was also considered, in this case, the optimal control parameters ensuring straight-line flight of the hexacopter were determined.
Keywords: hexacopter, route, control parameters, faulty engine, quaternion, spatial orientation, unmanned aerial vehicle

Bakhtiyar Namazov (Logistics and Transport Technologies Department, Baku Engineering University), Rustam Khalilev (Digital Innovations Department, Azerbaijan Land Transport Agency) and Merey Yeraly (Digital Innovations Department, Azerbaijan Land Transport Agency). *Application of a single integration platform in the task of intergovernmental interaction between countries within the East-West transport corridor.*

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Abstract. Platform solutions in the field of logistics are being developed individually in countries. The successful practice of interaction between countries, using the example of the development and approval of a unified data transfer protocol in the European Union, shows the need to consolidate various platforms into a single environment. The article reflects the strategy and integrated approach to the development of information systems and technologies in the task of improving logistics processes in the Republic of Azerbaijan, both for domestic and transit freight transportation.
Keywords: platform, logistics, information technologies, digitalization, international transportation

Nadir Aghayev (National Aviation Academy, Western Caspian University) and Dashqin Nazarli (National Aviation Academy). *CREATING A FORECASTING MODEL OF PASSENGER FLOWS IN NON-SCHEDULED AIR TRANSPORTATION.*

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Abstract. In the article, a new method of building a forecast model using a fuzzy approach for charter air transportation time series with intra-series multiplicative changes is proposed. The method is based on the use of correlation functions in the calculation of forecast values based on statistical indicators of intra-row changes. In regular air transportation, the changes in the time series of statistical indicators are stable. On charter flights, these changes are unstable. This is due to the strong random effects of external factors (a sudden increase in demand for flights, economic changes, etc.) on the formation of charter flights. For this reason, the application of models based on trend changes does not give good enough results when building forecast models for charter flights. Therefore, to solve the problem, we propose to build a forecast model using a fuzzy approach, using the randomness of the intra-series changes of the statistical indicators of this type of air transportation. The researched method was checked based on the actual data of the time series of charter flights, and the results were obtained within acceptable limits.

Keywords: non-scheduled air transportation, forecasting, fuzzy approach, optimal model, charter flights

Aliagha Gasimov (Scientific-Research Institute of Economic Studies under the Azerbaijan State University of Economics (UNEC)), Rashad Huseynov (Scientific-Research Institute of Economic Studies under the Azerbaijan State University of Economics (UNEC)), Vekil Ibrahimov (Digital Technologies and Applied Informatics, Azerbaijan State University of Economics (UNEC)), Movlud Farzaliyev (UNEC Business School (MBA), Azerbaijan State University of Economics (UNEC); Western Caspian University) and Salman Najafov (Scientific-Research Institute of Economic Studies under the Azerbaijan State University of Economics (UNEC)). *Measuring the Impact of Information and Communication Technologies on Transport Sector in Azerbaijan.*

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Abstract. The purpose of the study is to evaluate the impact of information and communication technologies on the transport sector of Azerbaijan, to analyze the level of ICT use in the transport sector, and to prepare relevant proposals and recommendations. The transport sector, being one of the main sectors of the economy, plays an important role in ensuring the movement of products, people, and information within the country and beyond the borders. Efficient and effective activities of the transport sector depend on the availability of appropriate infrastructure and the use of modern technologies in the sector. The development of information and communication technologies at the global level has an irreplaceable role in the efficient operation of the transport sector, as well as in many areas of the economy, in the increase of income and the volume of transportation. In the presented study, the effect of ICT use on some indicators of the transport sector of Azerbaijan was evaluated by econometric models. At the same time, the level of ICT use in the transport sector of Azerbaijan was analyzed based on comparison with other countries in the world, and relevant suggestions and recommendations were given for their elimination.

Keywords: Transport, Digital Skills, ICT, econometric evaluation

Hasanzade Ulkar (Nakhchivan State University). *Nakhchivan Autonomous Republic's Impact on Tourism through the Implementation of Transit Transportation and Logistics Operations.*
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Abstract. The Zangazur corridor, which will unite the entire Turkic world, will become a corridor connecting Asia with Europe. After the realization of this strategic project, Azerbaijan will significantly contribute to the implementation of regional connectivity projects such as the East-West, North-South, and North-West transportation corridors.

The creation of the Zangazur corridor will also end the blockade of Nakhchivan, turning the autonomous republic into a logistics hub. Establishing a land connection with the main part of Azerbaijan will boost Nakhchivan's economic development, stimulate investment in the region, lead to the creation of new production facilities, and open up additional job opportunities. The opening of this transportation corridor will enhance Nakhchivan's role as a transit transportation and logistics center. The Nakhchivan Autonomous Republic will become one of the developed tourism regions in the country and the region as a whole.
Keywords: Nakhchivan, Zangazur corridor, transportation, logistics, tourism, transit

Gultac Zeynalzade (Nakhchivan State University). *Mitigating risks across the logistics supply chain.*
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Abstract. In the complex landscape of logistics, mitigating risks across the supply chain is imperative for maintaining efficiency and reliability. This abstract explores strategies and challenges associated with risk mitigation in logistics operations. By identifying vulnerabilities at various stages of the supply chain, including transportation, warehousing, and distribution, organizations can implement proactive measures to mitigate potential disruptions. Leveraging technology such as real-time tracking and data analytics enables proactive risk identification and response. Additionally, fostering collaboration and transparency among stakeholders facilitates effective risk management. However, challenges such as cyber threats, natural disasters, and geopolitical tensions necessitate continuous adaptation and resilience-building efforts. Through a holistic approach that integrates technology, collaboration, and resilience-building, organizations can effectively mitigate risks and ensure the uninterrupted flow of goods along the logistics supply chain, ultimately enhancing customer satisfaction and maintaining competitiveness in the global market.
Keywords: mitigating risks, logistics, supply chain, risk management, risk mitigation, supply chain resilience, transportation, supply chain visibility, supplier risk, contingency planning

Zahra Seyidgizi (Nakhchivan State University) and Shahriyar Guliyev (Nakhchivan State University). *ARTIFICIAL INTELLIGENCE AND SMART ROADS - THE RENEWED SILK ROAD.*
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Abstract. The Silk Road project is aimed at economic prosperity and achieving success in an entirely different facets of trading for the participating states. In land by railway and highways, and in sea by ports, the world will connect in a single trade space. The management of this system will be implemented harnessing AI, which is the profit of the new technological age. For building contemporary transportation IS, the most cutting-edge approach is data-driven paradigm leveraging ANNs. Concerning system security, inference servers are deployed on-premise as opposed to cloud-based solutions. The architectural framework relies on multiphase ML methodologies, encompassing Faster R-CNN CV models for analysis of on-road imagery data, Transformer Foundational Models of NLP, LLMs, GenAI are employed to enhance driver awareness, regarding aspects as traffic and meteorological conditions, monitoring driver/vehicle safety operations. DRL techniques, exemplified by Deep Q-Networks, alongside the incorporation of hybrid models are utilized optimizing traffic load. To adhere to best practices, the adoption of a RAG employing Vector Databases enables real-time actuation of data within ANN models. The entire system is powered by monocrystalline cell solar-powered green technology, emphasizing sustainability. AI-enabled emergency control mechanisms are integrated for long-distance traveling vehicles, ensuring the implementation of enhanced safety mechanisms.
Keywords: Smart Roads, The Renewed Silk Way, Trading Facets, Foundational Models, DRL, Deep Q-Networks, GenAI, LLM, Faster R-CNN, RAG, Vector Database, Economic Prosperity, Land Transportation, Sea Ports, Data-driven Decision-Making, Information System Security, Traffic Optimization, Emergency Control Mechanisms

Ilham Suleymanov (Nakhchivan State University). *PRINCIPLES OF OSPF TOPOLOGY ESTABLISHMENT AND COMPUTATION OF PATH SELECTION ALGORITHM.*

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Abstract. Modern transportation corridors are fundamental for the swift movement of goods along short routes. Digital systems and IP technologies play crucial roles in shaping processes along these corridors. With the application of digital systems, these corridors operate more efficiently and swiftly. IP technologies facilitate rapid and secure information transmission within transportation corridors, ensuring faster, safer, and more efficient processes in the transportation sector. During accidents, natural disasters, smuggling, and other undesirable events on road infrastructures, IP technologies are extensively utilized. IP cameras feed Artificial Intelligence by means of Facial Recognition, license plate reading, determination of vehicle color and model, etc., by sending information to the Central Management System. The proposal for transmitting acquired information follows the router convergence topology of Open Shortest Path First, a digital network protocol used for finding the shortest path based on disseminated information, comparable to navigation instruments guiding us to our desired destination via the shortest route. OSPF features include initiating routing updates upon changes in network topology, ensuring rapid dissemination of network changes, and supporting classless routing by including subnet masks in updates.
Keywords: Transportation Corridors, Digital Systems, IP Technologies, Information Transmission, Artificial Intelligence, Facial Recognition, License Plate Reading, Central Management System, Open Shortest Path First (OSPF), Network Topology

Shahriyar Guliyev (Nakhchivan State University) and Tarxan Orujov (Nakhchivan State University). *SMART WAREHOUSES AT LOGISTIC CENTERS.*

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Abstract. Smart warehouses at logistic centers represent a transformative shift in the logistics landscape. Integrating cutting-edge technologies such as IoT sensors and AI, these facilities optimize inventory management and streamline operations. Real-time monitoring of inventory levels allows for proactive replenishment, while autonomous material handling systems reduce manual labor. AI-driven predictive maintenance minimizes equipment downtime, ensuring operational efficiency. Data analytics provide valuable insights into supply chain operations, enabling informed decision-making. With optimized storage space utilization and streamlined order fulfillment processes, smart warehouses promise increased efficiency and superior customer experiences, driving operational excellence in the logistics sector.
Keywords: Smart Warehouses, Logistic Centers, IoT Sensors, AI Integration, Inventory Management, Autonomous Material Handling, Predictive Maintenance, Data Analytics, Operational Efficiency, Customer Experience

Miryasin Eminov (Nakhchivan State University) and Shahriyar Guliyev (Nakhchivan State University). *METHODS FOR SOLVING BERNOULLI'S DIFFERENTIAL EQUATION AND ITS NOVEL APPLICATIONS.*

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Abstract. Methods for solving Bernoulli's differential equation are essential across various scientific and engineering disciplines. Bernoulli's equation, a nonlinear first-order ordinary differential equation, finds applications in fluid mechanics, biology, economics, and more. Techniques such as direct integration, substitution, and transformation offer analytical solutions to diverse problems. Recent years have witnessed novel applications of Bernoulli's equation in fluid dynamics, economics, biomedical engineering, and environmental science. It's utilized to analyze airflow in aircraft design, predict market trends, model blood flow, optimize pipeline systems, and more. Bernoulli's equation serves as a fundamental tool for understanding complex systems and phenomena. As research progresses, new methods and applications are expected to further enhance its significance in various fields.
Keywords: Bernoulli's Differential Equation, Methods for Solving, Applications, Fluid Mechanics, Economics, Biomedical Engineering, Environmental Science, Direct Integration, Substitution Methods, Transformation Techniques

Ramin Rzayev (Institute of Control Systems of the Ministry of Science and Education of the Republic of Azerbaijan) and Emil Ahmadov (Intelligent Transport Management Centre of the Ministry of Internal Affairs of the Republic of Azerbaijan). *On the Issue of Short-term Forecasting of Vehicle Travel Time Along a Selected Segment of the Transport Network of an Urban Agglomeration.*

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Abstract. The article is devoted to solving the problem of analyzing and forecasting the parameters of traffic flows in the network of a large urban agglomeration. As one of these parameters, the average travel time for public transport vehicles along a selected segment of the Baku transport network is considered. The initial data is formed by processing and filtering the readings of the speed sensors of the Technical (Computer) Vision System of the city Intelligent Transport Management Centre, which monitors traffic in real time (every second during the day). The solution to the problem of short-term forecasting of the travel time is proposed, which is considered using both traditional methods of analysis, for example, the exponential smoothing method, and using neural network and fuzzy modeling methods. As the basic object of subsequent analysis, the corresponding time series is considered, reflecting the dynamics of changes in the time parameter for vehicles to travel through a limited segment of a transport network of the fixed length for a full day.

Keywords: transport network, dynamic graph segment, traffic flow, time series, short-term forecasting

Faxraddin Mammadov (Institute of Control Systems), Sayyad Agayev (Institute of Control Systems; Academy of the State Customs Committee) and Ilgar Askerov (Institute of Control Systems). *The SWOT Analysis of the Road-Transport Infrastructure Opportunities in the Karabakh Economic Zone.*

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Abstract. The main objective of this work is to analyze the strengths and weaknesses of the transportation infrastructure in the Karabakh Economic Zone. In the reconstruction of the transportation infrastructure of our liberated territories, the construction of roads holds special importance. In the article, the external opportunities and specific characteristics hindering it are explored, and a SWOT analysis is conducted. The impact of the "Victory Road" on the development of the Karabakh Economic Zone has been evaluated. The establishment of new roads envisaged in the "State Program I on the Return to the Liberated Territories of the Republic of Azerbaijan" is of great importance in strengthening transportation links with the main part of Azerbaijan. Based on empirical results, the authors propose conducting an economic analysis of the road-transport infrastructure through SWOT analysis.
Keywords: internal strengths, internal weaknesses, road, railway, transportation infrastructure

Teimurazi Davitashvili (Ilia Vekua Institute of Applied Mathematics of Iv.Javakhishvili Tbilisi State University). *On modeling hydrogen transportation along the East-West transport corridor in the context of climate change.*

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Abstract. The purpose of this work is to study the nonstationary flow of a mixture of hydrogen and natural gas under high pressure in a natural gas pipeline. The density of a homogeneous mixture of hydrogen and natural gas is determined by an expression averaging the two gas densities at which a polytropic process is allowed. Pressure, temperature and flow rate are considered as three main dependent variables, which are determined by nonlinear hyperbolic partial differential equations. Analytical solutions of one-dimensional partial differential equations describing the isothermal gas flow in inclined and inclined-branched pipelines are presented.
Keywords: pipeline, hydrogen, natural gas, modeling

Gorkhmaz Imanov (Institute of Control Systems, Ministry of Science and Education), Asif Aliyev (Institute of Control Systems, Ministry of Science and Education) and Khudayar Hasanli (Head of the Strategic Planning and Development Department, Baku International Sea Trade Port). *Circular intuitionistic fuzzy model for selection of Asia-Europe logistic root alternatives.*

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Abstract. The changing situation in the world, particularly the Russian-Ukrainian and Israeli-Palestinian conflicts, requires a new approach to evaluating trade routes between Asia and Europe and establishing new priorities for these routes. In this work, an analysis of the logistics capabilities of the corridors connecting Asia and Europe, including the Northern Corridor, the Middle Corridor, and the Maritime Corridor, was conducted, along with evaluations of selected parameters considering the geopolitical situation in the region, based on expert data. The priority or preference ranking of logistic routes was determined using the C-IF VIKOR method, which is suitable for information with uncertainty. Circular Intuitionistic Fuzzy Sets (C-IFS) facilitate decision-makers in establishing the circular rating of data and defining membership and non-membership degrees within a certain radius. As a result of the analysis, the importance of the Middle Corridor, which took the first place in the ranking, was emphasized, along with the potential opportunities of the Zangezur Corridor.

The research work was conducted based on a proposal from the "Baku International Sea Port," and the results reveal possible policymaking options for the aforementioned organization, the Ministry of Digital Development and Transport, as well as other local and international organizations interested in logistics activities.
Keywords: Circular intuitionistic fuzzy VIKOR method, selection of logistic root alternatives, Middle Corridor

Sabina Iskandarova (National Aviation Academy of Azerbaijan Airlines), Polad Ismayilov (National Aviation Academy of Azerbaijan Airlines) and Bala Aga Karimov (National Aviation Academy of Azerbaijan Airlines). *THE IMPORTANCE OF USING STATE OF THE ART IT TECHNOLOGIES IN LOGISTICS.*

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Abstract. The logistics sector is constantly developing as businesses aim to find new, more effective ways to deliver their products to consumers. This has resulted in the development of a number of innovative solutions. However, as the logistics sector becomes more complex, the challenges facing it grow more complicated. Despite the challenges, the logistics industry keeps developing and fostering innovation driven by the ever-changing needs of businesses and consumers and the impulse to find new, more effective ways of operation. Logistics is the process of planning, implementing, and controlling the efficient movement and storage of goods, services, and related information between the point of origin and the point of consumption to meet consumer requirements. Logistics plays an important part in helping businesses move goods and services from production to consumption. In the supply chain, its role is critical as it ensures the delivery of goods and materials to the right place, at the right time, and in the right quantity. In order to compete successfully in today's global market, it is vital for any business to have an effective logistics system.
Keywords: Logistics, information technology, supply chain, development, efficiency

Sevinj Alfaheeda (Azerbaijan State Maritime Academy) and Javahir Aghayeva (Military Institute named after Heydar Aliyev). *The Role of Geographical Position of Azerbaijan on the Crossroads of Trade Routes: Challenges and Future Resolutions.*

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Abstract. Economic structure of any country depends on a right implementation of human resources policy, development of good business model and strategy. So the establishment of "user–friendly" environment to further interactive access into the world of logistic cooperation among world nations will be an asset to the growth of economic reforms. Therefore, if economic efforts were to bear fruit and economic reforms were to succeed, multilateral financial

institutions should simply “build roads”. Belt and Road Initiative is a new “spirit” to develop modern routes for successful multilateral trade efforts because routes are the indicators of economic knowledge, knacks and, of course, abilities to think economically.

The crucial point of this initiative seems to address the poverty issue as it supports businesses in Central and East Asian regions that lag behind the active trade relations with neighboring as well as distant/remote countries. Belt and Road contracts make the “One Belt, One Road” policy be competitive as it brings a good opportunity into generous budget allocations, thus boosting the business income of nations joining China’s global incentive of economic development.

BRI shares the old geopolitical environment of the Silk Road. Its historical importance implies economic control of the world.
Keywords: Silk road, China, networks

Eldar Shahbazov (SOCAR Oil Industry Journal), Shamil Farzalizade (Baku Higher Oil School) and Turkan Zeynalzade (Baku Higher Oil School). *Van der Waals interaction of nanonized oil particles in a porous medium.*

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Abstract. The article proposes an analytical calculation of van der Waals forces acting on oil by nanoparticles, which suggests their role in changing the rheological properties of oil and the subsequent transition to a new regime. In the intricate geometrical configurations of the oil and gas industry, understanding Van der Waals interactions governing nanofluid particles within porous media becomes crucial. Results demonstrate a flat-sphere model for nanofluid behavior in porous media, specifically between oil, rock, and nanoparticles. The free energy associated with non-retarded Van der Waals interactions is expressed through equations, revealing the proportional relationship with the Hamaker constant. Utilizing addition rules for multicomponent systems, the study calculates the Hamaker constants for aluminum, sand, and oil, showcasing the superiority of nano-induced Van der Waals forces compared to porous media without nanoparticle exposure. Furthermore, according to laboratory data of nanoparticle injection study, 5 models for the dependence of surface tension, force, and nanoparticle concentration have been constructed to ensure the tension minimization process.
Keywords: van der Waals forces, nanofluid, nanotechnology, small concentrations and perturbance effect, Hamaker constant, oil rheology

Chinara Hajieva (Baku Engineering University). *Approximate solution of the simple hypersingular integral equations with Hilbert kernel.*

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Abstract. In the present paper, the hypersingular integral operator with Hilbert kernel is approximated by a sequence of operators of the special form, it is proved that, the approximating operators strongly converge to the operator of the special form, for a trigonometric polynomial of degree not higher than and is given a new method for the approximate solution of hypersingular integral equations of the first kind with Hilbert kernel and as an example is shown its application to a certain problem.
Keywords: Hypersingular Integral Operator, Hilbert Kernel, Hypersingular Integral Equation

Aida Magomedova (Azerbaijani). *Optimization of the education system in underdeveloped countries of the world.*

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Abstract. Education in the modern world plays an important role and in view of the economic and political complications in underdeveloped countries, the need for education is a particularly acute problem. The solution is to optimize the education system in these countries, it is necessary to choose the optimal system taking into account the individual aspects of the country, its economy and the political state of the country. Having considered the measures taken, we will try to choose a model for optimizing the education system based on several countries of the world.
Keywords: education, optimization, development, model, country, economy

Rahul Singhal (Ajay Kumar Garg Institute of Management), Chandra Pal Singh (IIMT Engineering College), Nitin Saxena (ITS School of Management), Ankit Garg (Ajay Kumar Garg Institute of Management), Vikhyat Singhal (IIMT Engineering College) and Ritesh Kumar Singhal (Ajay Kumar Garg Institute of Management). *Analyzing the influence of FDI in food processing industry of India on domestic investment through DOLS.*

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ankit@akgim.edu.in, vikhyat3179@gmail.com, ritesh@akgim.edu.in

Abstract. Foreign direct investment is considered the primary substitute source of finance for business firms. The level of foreign investment serves as a key indicator of a country's growth potential. The Food processing industry is an unexplored sector that has huge potential to navigate the economic growth of India. The Food processing industry is expected to contribute approx 20% to India's GDP by 2030. Through extensive literature review, it has been found that no study investigates the impact of FDI in the food processing industry of India on domestic investment in the food processing industry. This study establishes a connection between Foreign Direct Investment in the food processing industry and domestic investment in the food processing industry of India. To analyze the time series data from 2003 to 2023, co-integration and DOLS methods have been employed.
Keywords: Foreign Direct Investment, Food Processing Industry, Co-integration

Fidan Nuriyeva (Dokuz Eylul University) and Urfat Nuriyev (Ege University). *Circuit Covering Graph Based Algorithm for Solving the Traveling Salesman Problem.*

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Abstract. This study presents an algorithm for solving the Traveling Salesman Problem (TSP) based on Circuit Covering Graph and Insertion heuristic strategies.

This algorithm offers an efficient approach to constructing a tour for the TSP, Experimental results demonstrate the effectiveness of the algorithm in solving TSP instances with large numbers of cities.
Keywords: Traveling Salesman Problem, Insertion heuristics, Circuit Covering Graph

Aleksander Sładkowski (Silesian University of Technology) and Komil Turaev (Silesian University of Technology). *Regional Comparison of Public Railway for Passenger Transportation in Uzbekistan by Using the Analytical Hierarchy Method.*

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Abstract. The extent of passenger transportation along railway lines is contingent upon a multitude of socio-economic factors. Hence, before commencing any investment in a railway line, comprehensive analyses are conducted concerning line selection and the scope of operations. This article delves into calculating weights that determine the influence of specific socio-economic factors on rail passenger transport volumes, employing the Analytical Hierarchy Process (AHP) methodology. Subsequently, based on these factors, a comparison was undertaken among the 12 regions and Karakalpakstan autonomous republic of Uzbekistan concerning their impact on passenger transport. This comparison facilitated the arrangement of areas respectively of their demographic and economic conditions, offering insights into their relative significance in the realm of passenger transportation.
Keywords: AHP method, consistency, passenger transport, Uzbekistan railways, regions

Andrzej Czerepicki (Warsaw University of Technology Faculty of Transport) and Maciej Kozłowski (Warsaw University of Technology Faculty of Transport). *Method for Determining the Urban Bus Cycle Using Bayesian Inference.*

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Abstract. European cities are currently experiencing a period of intensive development in electric urban transportation. This includes solutions involving the conversion of older diesel buses to electric propulsion. Poland is among the leading European manufacturers of electric buses. However, implementing electric buses in cities requires thoroughly analyzing traffic conditions. Known cases exist where fleets of electric buses were unable to operate correctly in low-temperature conditions. This poses a significant threat to the efficiency of public transportation. Therefore, the work presented in this article will aim to propose a method for developing a driving cycle for electric buses in urban transit, whose schedule corresponds to the operational characteristics of the capital city of Warsaw. The article will present the methodology for collecting data characterizing the journeys of buses operated by MZA Warsaw (Municipal Bus Company) and their analysis regarding characteristic statistical features. An attempt will be made to develop an urban cycle consisting of three inter-stop road sections selected to represent the significant probabilistic features of operational schedules to the maximum extent possible. This representative Warsaw cycle can subsequently be utilized in the design of bus propulsion systems for the city of Warsaw.
Keywords: urban driving cycle, electric bus, operational trips, computer modeling

László Vida (Hevterv Ltd), Béla Illés (University of Miskolc), Antal Véha (Unuversity of Szeged) and Zsombor Latorcai (Budapest). *Container handling along the Silk Road.*

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Abstract. The study examines the impact of container handling on intermodal transport along the China-Europe rail route, also known as the Silk Road. Based on publicly available data, the freight traffic on the Silk Road and the methods of "get on the train" and "get off the train" containers at intermediate stops along the route will be investigated. Containers travelling on the train are passengers like people with different travel goals. Accordingly, they may have different embarkation and disembarkation stations, which the technology must cater for. Advances in technology, robotisation and the use of Industry 4.0 methods in container handling could have a significant impact on intercontinental rail and continental intermodal freight transport, creating opportunities for more efficient operation of rail infrastructure. Modern container handling and the rail-road intermodal freight transport it underpins could be a prerequisite for sustainable freight transport. We present a model for competitive intermodal freight transport on a market basis and its potential for implementation along the Silk Road.
Keywords: intermodal freight transport, modal shift, horizontal container transshipment

Aleksander Sładkowski (Silesian University of Technology) and Vladyslav Ruban (Dnipro University of Technology). *Analysis the Strength Characteristics of Shaped Cutters for Turning Locomotive Wheels.*

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Abstract. Due to their more intensive use compared to wagon wheels, locomotive wheels are subject to significantly greater wear. Therefore, they require more frequent restoration repairs during which the original profile of the working surface is recreated. There are two main technologies for such repairs worldwide – wheel turning and wheel milling. In the countries of the former USSR, the restoration repair of locomotive wheels is most often used on KZh-20 machines. At the same time, the quality of the processed surface of the wheels depends on the maintenance of the shaped cutters. The authors in previous works proposed new designs of cutters with a large number of cutting elements. This work is devoted to modeling the strength of such cutters, and FEM was chosen as the main technique for analysis. As a result of research, it was proven that using new cutter designs will not worsen their performance but will help improve performance characteristics.
Keywords: wheel turning and wheel milling, restoration, working surface, locomotive wheels, KZh-20 machines

Jelica Komarica (University of Belgrade, Faculty of Transport and Traffic Engineering), Draženko Glavić (University of Belgrade, Faculty of Transport and Traffic Engineering), Marina Milenković (University of Belgrade, Faculty of Transport and Traffic Engineering) and Marija Malenkovska Todorova (University St.Kliment Ohridski Bitola, Faculty of Technical Sciences). *Predictive power of ANN in estimating the use of dockless shared e-scooters for commuting trips.*

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Abstract. The problem of traffic congestion, caused by passenger cars from users who travel to work every day, is a challenge faced by many planners and transport policy makers. The growing popularity of electric scooters has led many authors to gain the trust of many users by implementing a system of dockless shared e-scooters. This research carried out through an online survey of the citizens of Belgrade, aimed to examine the willingness of users to use the system of shared e-scooters if it were to be introduced, as well as the analysis of influencing factors on making the final decision for the mode of transportation when commuting trips. With the support of the neural network model, whose prediction accuracy is 84,2%, it was possible to find out that the final choice of mode of transport is significantly influenced by the topography of the terrain (100%), age (93,8%) and the used mode of transport (91,6 %) for commuting trips before recommending the hypothetical introduction of the system of shared e-scooters.
Keywords: dockless, shared e-scooter, commuting trips, urban mobility, artificial neural network, prediction

Elchin Isgandarzada (National Aerospace Agency) and Ayshan Azizova (National Aerospace Agency). *ISSUES OF OPTIMIZATION OF PREVENTION OF GROUNDWATER POLLUTION BY OIL AND HYDROCARBON WASTE WHEN USING PERMEABLE REACTIVE BARRIERS.*

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Abstract. The issues of the use of permeable reactive barriers to prevent groundwater by petroleum hydrocarbons are analyzed. A model of adsorption purification of groundwater from pollutants such as petroleum hydrocarbons, chlorocarbons and heavy metals is proposed.

The formulated task of synthesizing the optimal model is solved by applying the variational optimization method. The solution of the problem, taking into account the corresponding restrictive condition, made it possible to determine the condition of maximum adsorbent consumption, when fulfilled, the maximum amount of adsorbent is required per unit cross-sectional area of the adsorption shaft.
Keywords: optimization, oil pollutants, reactive barrier, groundwater, adsorption

Fidan Pashayeva (Azerbaijan State Oil and Industry University, Baku, Azerbaijan) and Tahir Alizada (Institute of Control Systems, Baku, Azerbaijan). *Application of Internet of Things Technology in the Logistics of the East-West Transport Corridor.*

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Abstract. The integration of Internet of Things (IoT) in transit transport and logistics is revolutionizing the industry by enhancing efficiency, safety, and sustainability. This abstract explores the implementation of IoT technologies in transit systems and logistics networks, focusing on their impact on real-time tracking, predictive maintenance, and data-driven decision-making. By leveraging IoT sensors, devices, and data analytics, transportation and logistics companies can optimize route planning, reduce fuel consumption, and minimize delivery delays. However, challenges such as security vulnerabilities and interoperability issues need to be addressed to fully realize the potential benefits of IoT in this domain. This study presents original research findings on the practical applications and implications of IoT in transit transport and logistics, providing valuable insights for industry professionals and policymakers.
Keywords: internet of things, transit transport, logistics, real-time tracking, predictive maintenance, data analytics, efficiency, sustainability, security, interoperability

Aygun Aliyeva (İnstitute of Control Systems; Azerbaijan University of Architecture and Construction) and Sayyad Agayev (Institute of Control Systems; Azerbaijan Tourism and Management University; Academy of the State Customs Committee). *Assessment of the impact of tourism logistics on the economy of Azerbaijan in line with the development of the East-West corridor.*

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Abstract. The Republic of Azerbaijan, located in a very strategic position between the continents of Europe and Asia, has a rich potential for the development of the tourism industry as a whole, including individual types of tourism services. At the same time, its location at the junction of international transport corridors creates fertile conditions for the development of tourism services in our country. In modern economic conditions, the role of tourism in the development of national economy is vital, as tourism is considered one of the main directions of economic development. In the article, the analysis of tourism logistics in Azerbaijan is given by years and through a comparative analysis. The econometric estimation of dependence of the volume of added value created in the spheres characteristic for tourism on other indicators was also carried out. Based on the given statistical base the linear-logarithmic model of dependence of income received by travel agents and tour operators on the volume of investments made in the spheres typical for tourism and the number of employees working in the spheres typical for tourism was established.
Keywords: transport corridors, tourism, travel agents, tour operators, revenues generated by transportation, value added, investment volume, number of employees

Grzegorz Kubica (Silesian University of Technology). *Development of hydrogen storage systems for solutions used in road transport.*

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Abstract. The publication presents an overview of contemporary solutions for hydrogen storage systems in high-pressure tanks in means of transport. Development in this area is a response to the challenge of reducing global carbon dioxide emissions and limiting the emissions of toxic compounds. The variety of solutions used is stimulated by the increasingly common use of this gas. The development of new tank designs and the tests performed allow us to improve systems in terms of functionality and safety. The study presents solutions used for storing compressed hydrogen. The results of testing these solutions in the light of the requirements of applicable standards and legal regulations are also presented. The state of advancement of modern technologies for producing high-pressure storage systems allows the use of working pressures up to 70 MPa. The main goal of the presented research is to verify the structure of the tank and the security systems used. One of the basic test methods is to check the tank structure and the functioning of safety devices under open fire conditions.

Keywords: Energy, hydrogen, safety, storage system, transport means

Ulviyya Mammadova (Institute of Control Systems, Baku, Azerbaijan) and Shahriyar Rza (Azerbaijan State Oil and Industry University, Baku, Azerbaijan). *Comparative analysis of methods for organizing cybersecurity of corporate network systems.*

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Abstract. In today's digital age, the protection of corporate network systems against cyber threats is necessary. The increasing amount and complexity of cyberattacks necessitate a robust and comprehensive approach to cyber security. This abstract undertakes a comparative analysis of various tools designed to organize and enhance the cyber security of corporate network systems. The comparative analysis section assesses a range of tools available for strengthening cyber security within corporate networks, including firewalls, intrusion detection and prevention systems (IDPS), antivirus software, encryption tools, and security information and event management (SIEM) systems. Each tool is evaluated based on criteria such as effectiveness, ease of implementation, scalability, cost-effectiveness, and compatibility with existing network infrastructure. Real-world case studies and examples illuminate the practical implications of utilizing different tools in diverse organizational contexts. By synthesizing these findings, we offer insights into selecting the optimal combination of tools tailored to the unique requirements and challenges of each corporate network system. In conclusion, this abstract underscores the critical role of effective cyber security tools in guarding corporate network systems against evolving threats. By making informed decisions based on thorough comparative analysis, organizations can strengthen their cyber security posture and mitigate the risks associated with cyberattacks.
Keywords: corporate network, cyberattack, cyber security, firewall, IDPS, antivirus software, SIEM

Bayram İbrahimov (professor, Department of Radioelectronic and Aerospace Systems, Azerbaijan Technical University,), Aygun Hamidova (dissertation, AzTU, Baku, Azerbaijan) and Elnare Jafarova (dissertion, Department of Computer Engineering and Telecommunication, Azerbaijan Technological University). *RESEARCH AND ANALYSIS OF THE EFFECTIVENESS MULTISERVICE COMMUNICATION NETWORKS USING SDN TECHNOLOGY.*

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Abstract. this work analyzes the algorithms for the operation and efficiency of multiservice communication networks using SDN technology in the provision infocommunication services and applications. Based on the study, a new approach to constructing a mathematical model of the efficiency multiservice communication networks is proposed, taking into account the property self-similar useful and service traffic. Based on the model, the analysis of the quality of service parameters mixed traffic in the SDN network, the functioning diagram of the studied model of a link in a multiservice communication network and the description their logical function, QS in the form of a dependency graph communication network routes are considered. A mathematical model has been studied and analytical expressions have been obtained that allow us to estimate the throughput of the communication system, the probabilistic-time characteristics network and the performance hardware and software systems and communication channels. A block diagram of a multiservice communication network link in the form queuing systems (QS) using a switch and SDN technology controller is presented. Based on the model, the results of numerical calculations of efficiency indicators of a public communication network were studied.

Keywords: 1.operational efficiency, 2.multiservice network, 3.performance, 4.throughput, 5.QoS, 6.hardware-software complex, 7.probabilistic-time characteristics, 8.communication networks, 9 SDN.

Tahir Alizada (Institute of Control Systems, Baku, Azerbaijan) and Wen Hao (Azerbaijan State Oil and Industry University, Baku, Azerbaijan). *Intelligent transport systems as a modern concept of road safety.*

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Abstract. Modern challenges of the transport system - the increase in the level of motorization of the population, the imperfection of the system of organizing and managing the development of the road transport complex, the insufficient information component when making management decisions - greatly complicate the process of ensuring road safety. Solving these problems can be complicated by the fact that not all components of the transport system interact with each other. The above difficulties cannot be overcome using old tools, for example, modern cities must be equipped with modern elements of informing about the condition of roads in real time. City services must not only accumulate, but also use data, applying intelligent analysis tools to it to identify patterns and anomalies. To overcome such a barrier, information technologies and intelligent transport systems are being actively introduced in the modern world. Currently, it is difficult not to notice the constantly increasing pace of development and implementation of intelligent transport systems in many developed and developing countries of the world.
Keywords: intelligent transport system, road safety, information technology, data analysis, photo and video recording, weight and dimensional control

Ulviyya Mammadova (Institute of Control Systems, Baku, Azerbaijan) and Nijat Hasanli (Azerbaijan State Oil and Industry University, Baku, Azerbaijan). *Vision-Based Navigation Techniques for Unmanned Aerial Vehicles.*

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Abstract. In recent years, the growing interest in unmanned aerial vehicles (UAVs), also known as drones, has been propelled by advancements in technology, particularly in artificial intelligence, miniaturization of components, and computer vision. These developments have led to decreased costs and increased accessibility of UAVs for a wide range of applications and services. The integration of computer vision with UAVs offers state-of-the-art technology for visual navigation, localization, and obstacle avoidance, enabling autonomous operations. However, their limited autonomy in GPS-blind environments poses challenges. Vision-based approaches utilizing affordable and flexible visual sensors have emerged as advantageous solutions for UAV navigation, thanks to rapid advancements in computer vision. Key components of visual navigation include visual localization and mapping, obstacle avoidance, and path planning.
Keywords: vision-based navigation, unmanned aerial vehicle, UAV, drone, artificial intelligence, computer vision, visual localization and mapping, obstacle avoidance, path planning

Shahnaz Shahbazova (Azerbaijan State University of Economics (UNEC)) and Ali Abbasov (Institute of Control Systems, The Ministry of Science and Education of the Republic of Azerbaijan, Azerbaijan State University of Economics, UNEC). *AN INTELLIGENT METHOD FOR OPTIMIZING CALCULATIONS OF VISUAL AND AUDIO INFORMATION.*

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Abstract. In this paper, the main methods are considered, which are the outcome of an experimental search for the most stable solutions capable of solving the problem of recognizing visual and audio information in the natural environment. The paper analyzes the effect of the negative impact of studying the details of objects, which enormously (up to 10 times) increases the computational load and, on the other hand, practically does not affect the success of recognition. Often, such studies are harmful until the object itselves belonging to a particular semantic concept is precisely established.
Keywords: recognizing visual information, recognizing sound information, semantic concept, isolating information objects, disassembling a visual scene