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INTERNATIONAL TRENDS IN THE DEVELOPMENT OF THE GLOBAL ELECTRIC VEHICLE MARKET UNDER DIGITAL TRANSFORMATION AND DECARBONIZATION OF THE ECONOMY

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Izmailov Ya. O., Yegorova I. H. International Trends in the Development of the Global Electric Vehicle Market under Digital Transformation and Decarbonization of the Economy

The aim of this article is to examine the current trends in the development of the international electric vehicle market under conditions of digital transformation and global economic decarbonization, identify the key factors influencing its development, and substantiate the prospects for the future development of global electric mobility. Particular attention is paid to the analysis of structural changes in the global market, the impact of government policy, technological innovation, the expansion of charging infrastructure, and digital technologies on shaping the contemporary model of the international electric vehicle market. The study substantiates that the global electric vehicle market is one of the most dynamic segments of the world economy, whose development is driven by the complex interaction of economic, technological, environmental, and institutional factors. It is demonstrated that the accelerating electrification of transport is driven by the strengthening of international climate policy, the implementation of decarbonization strategies, the advancement of digital technologies, continuous improvements in battery systems, and increasing investment in electric vehicle manufacturing and charging infrastructure. The current state of the international electric vehicle market is analyzed through an assessment of global sales dynamics and the regional market structure. The leading countries in terms of electric vehicle sales are identified, and the principal factors shaping current industry development trends are systematized. The findings indicate that China, the countries of the European Union, and the United States occupy leading positions in the global electric vehicle market, accounting for the largest share of global electric vehicle production and sales through the combination of efficient government support, technological innovation, and substantial investment in transport and energy infrastructure. The study identifies the major challenges facing the further development of the international electric vehicle market, including the secure supply of critical mineral resources, the expansion of charging infrastructure, the advancement of energy storage technologies, the integration of electric vehicles into intelligent energy networks, and intensifying international competition among leading manufacturers. It is demonstrated that effectively addressing these challenges requires the coordinated implementation of public policy, innovation, digital transformation of transport systems, and international cooperation. A conceptual framework for the development of the international electric vehicle market is proposed, summarizing the interrelationships among global institutional factors, technological innovation, market mechanisms, and the socioeconomic outcomes of electric mobility development. The practical significance of the proposed framework lies in its potential application as an analytical basis for assessing global electric vehicle market trends, substantiating strategic public policy priorities, and supporting managerial decision-making in the field of environmentally sustainable transport.

Keywords: international electric vehicle market; electric mobility; digital transformation; economic decarbonization; charging infrastructure; battery technologies; sustainable development.

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Ізмайлов Я. О., Єгорова І. Г. Міжнародні тенденції розвитку світового ринку електромобілів в умовах цифрової трансформації та декарбонізації економіки

Метою статті є дослідження сучасних тенденцій розвитку міжнародного ринку електромобілів в умовах цифрової трансформації та глобальної декарбонізації економіки, визначення ключових чинників, що впливають на його функціонування, а також обґрунтування перспектив подальшого розвитку світової електромобільності. Особливу увагу приділено аналізу структурних змін світового ринку, впливу державної політики, технологічних інновацій, розвитку зарядної інфраструктури та цифрових технологій на формування сучасної моделі функціонування міжнародного ринку електромобілів. Обґрунтовано, що світовий ринок електромобілів є одним із найбільш динамічних сегментів глобальної економіки, розвиток якого визначається комплексною взаємодією економічних, технологічних, екологічних та інституційних чинників. Доведено, що прискорення темпів електрифікації транспорту зумовлено посиленням міжнародної кліматичної політики, реалізацією стратегій декарбонізації, розвитком цифрових технологій, удосконаленням акумуляторних систем і зростанням інвестицій у виробництво електромобілів і зарядної інфраструктури. Проаналізовано сучасний стан міжнародного ринку електромобілів, досліджено динаміку світових продажів та регіональну структуру ринку, визначено країни-лідери за обсягами реалізації електромобілів, а також систематизовано основні чинники, що формують сучасні тенденції розвитку галузі. Встановлено, що провідні позиції на світовому ринку займають Китай, країни Європейського Союзу та США, які забезпечують основну частку глобального виробництва та продажів електромобілів завдяки поєднанню державної підтримки, інноваційного розвитку та

масштабних інвестицій у транспортну й енергетичну інфраструктуру. Визначено основні виклики подальшого розвитку міжнародного ринку електромобілів, серед яких особливе значення мають забезпечення критичними мінеральними ресурсами, розвиток зарядної інфраструктури, удосконалення технологій накопичення енергії, інтеграція електромобілів до інтелектуальних енергетичних мереж, а також посилення міжнародної конкуренції між провідними виробниками. Доведено, що ефективне подолання зазначених викликів потребує комплексного поєднання державної політики, інноваційної діяльності, цифрової трансформації транспортної системи та міжнародного співробітництва. Запропоновано концептуальну модель розвитку міжнародного ринку електромобілів, яка узагальнює взаємозв'язок глобальних інституційних чинників, технологічних інновацій, ринкових механізмів і соціально-економічних результатів розвитку електромобільності. Практичне значення запропонованої моделі полягає в можливості її використання як аналітичної основи для оцінювання тенденцій розвитку світового ринку електромобілів, обґрунтування стратегічних напрямів державної політики та прийняття управлінських рішень у сфері розвитку екологічно сталого транспорту.

Ключові слова: міжнародний ринок електромобілів; електромобільність; цифрова трансформація; декарбонізація економіки; зарядна інфраструктура; акумуляторні батареї; сталий розвиток.

Рис.: 3. Табл.: 2. Бібл.: 15.

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The contemporary development of the global economy is characterized by the rapid pace of digital transformation, the transition towards a low-carbon development model, and the widespread implementation of environmentally sustainable technologies. One of the key manifestations of these processes is the expansion of the electric vehicle (EV) market, which contributes to reducing greenhouse gas emissions, improving the energy efficiency of transport systems, and stimulating technological innovation. Over the past decade, the global electric vehicle market has experienced substantial growth, driven by government support programs, continuous advances in battery technologies, the expansion of charging infrastructure, and the development of digital mobility services. According to the International Energy Agency (IEA), electric mobility has become one of the fastest-growing sectors of the global economy, while its further development represents a crucial component of international climate policy and global decarbonization efforts.

Under these conditions, comprehensive research into international trends shaping the global electric vehicle market becomes increasingly important. Particular attention should be paid to assessing the factors determining market dynamics and identifying the current patterns of market development in the context of digital transformation and economic decarbonization.

LITERATURE REVIEW

In recent years, the development of the international electric vehicle market has attracted considerable attention from both Ukrainian and international scholars due to the rapid electrification of the transport sector, the advancement of digital technologies, the

growing need for economic decarbonization, and the transition towards sustainable development models.

Among Ukrainian researchers, H. H. Pivniak, V. V. Oleshevska, H. V. Oleshevskyi, and I. V. Lutsenko have made significant contributions to the study of electric mobility by examining the development of electric vehicle infrastructure, the integration of electric transport into energy systems, improvements in the energy efficiency of the transport sector, and the adaptation of international experience in transport electrification to the conditions of Ukraine's national economy [1].

The scientific foundations of modern electric mobility were established through the pioneering studies of M. S. Whittingham [2], whose research on lithium-ion battery systems and intercalation chemistry laid the groundwork for the development of advanced energy storage technologies. Subsequent advances in battery technology are closely associated with the work of J. B. Goodenough [3], who demonstrated the potential of lithium cobalt oxide cathode materials and made a substantial contribution to the development of modern lithium-ion batteries. Significant progress in next-generation energy storage technologies and advanced battery materials has also been achieved through the research of Y. Cui [4], whose studies focus on improving the efficiency, safety, and durability of rechargeable battery systems. The transformation of the global automotive industry, changes in vehicle markets, and the influence of environmental and technological factors on the development of electric mobility have been comprehensively examined in the works of P. Nieuwenhuis [5].

At the same time, a considerable proportion of contemporary research on the international electric vehicle market relies on analytical reports published by leading international organizations. The International Energy Agency (IEA) is recognized as one of the most authoritative sources of statistical and analytical information in this field. The Agency annually publishes the *Global EV Outlook* report and maintains the *Global EV Data Explorer* platform, which provides up-to-date information on electric vehicle production, sales, market structure, charging infrastructure, and government policies supporting electric mobility [6; 7]. Valuable insights into market forecasts, competitive dynamics, and investment trends are also presented in the annual reports of BloombergNEF [8]. Meanwhile, issues related to transport decarbonization and the transition towards a low-carbon economy are extensively addressed in the publications of the Organisation for Economic Co-operation and Development (OECD) [9], the European Commission [10], and the United Nations [11].

Despite the substantial body of existing research, insufficient attention has been devoted to a comprehensive analysis of the current development trends in the international electric vehicle market that simultaneously considers the effects of digital transformation, economic decarbonization, technological innovation, charging infrastructure development, and global institutional changes. Furthermore, additional research is required to systematize the key drivers of global electric vehicle market development and to establish conceptual approaches for assessing its future prospects under contemporary transformational conditions.

AIM AND RESEARCH METHODS

The *aim of this study* is to identify and synthesize contemporary international trends in the development of the global electric vehicle market, determine the key factors influencing its development under conditions of digital transformation and economic decarbonization, and develop a conceptual framework for the international electric vehicle market.

The study is based on publications by Ukrainian and international scholars, analytical reports issued by the International Energy Agency (IEA), BloombergNEF, the Organisation for Economic Co-operation and Development (OECD), the European Commission, and the United Nations, as well as official statistical data on the development of the global electric vehicle market covering the period 2016–2025.

The research employs a combination of general scientific and specialized methods. Analysis and synthesis were applied to generalize contemporary theoretical approaches to the study of the international electric vehicle market. Statistical analysis was used

to assess global electric vehicle sales dynamics and the regional structure of the market. Comparative analysis enabled the examination of the development patterns of the leading national electric vehicle markets. The methods of systematization and generalization were employed to identify the principal factors influencing the development of the international electric vehicle market. Graphical methods were used to visualize statistical data and market development trends, while conceptual modeling served as the basis for developing the authors' conceptual framework for the international electric vehicle market under conditions of digital transformation and economic decarbonization.

RESULTS AND DISCUSSION

The global electric vehicle (EV) market has become one of the most dynamic areas of transformation within the contemporary automotive industry. Unlike the traditional stage of transport sector development, modern electric mobility is shaped by the combined influence of technological, economic, environmental, and digital factors. It is no longer limited to the production of vehicles powered by electric drivetrains but has evolved into an integral component of a comprehensive digital ecosystem that incorporates battery manufacturing, intelligent transportation systems, charging infrastructure, renewable energy sources, and digital mobility management services [6; 9].

The rapid expansion of electric vehicles has become one of the key instruments for implementing international climate policy. The achievement of the objectives of the Paris Agreement, the European Green Deal, and national carbon neutrality strategies has encouraged governments to introduce financial, fiscal, and institutional mechanisms aimed at supporting both the production and adoption of electric vehicles. At the same time, the digitalization of transport infrastructure facilitates the integration of electric vehicles with traffic management systems, Smart Grid technologies, remote monitoring platforms, and artificial intelligence applications, thereby significantly improving the efficiency and sustainability of transport systems [6; 10; 12; 13; 14].

The global electric vehicle market is characterized by exceptionally high growth rates that substantially exceed those of the conventional automotive market. While electric vehicles accounted for only a marginal share of global automobile sales at the beginning of the previous decade, worldwide EV sales exceeded 17 million units in 2024, representing more than 20% of total new vehicle sales. According to forecasts published by the International Energy Agency (IEA), global EV sales are expected to surpass 20 million units in 2025, accounting for more than one-quarter of all new vehicles sold worldwide. China, the European Union, and

the United States remain the principal drivers of this expansion, generating the majority of global demand while setting the technological and institutional standards for industry development [6; 7; 8; 15].

An important characteristic of the current stage of market development is the transformation of competitive dynamics. Whereas competitive advantages were previously determined primarily by the manufacturing capacity of automotive corporations, increasing importance is now attached to software capabilities, battery technologies, digital services, vehicle connectivity, and the application of artificial intelligence. Consequently, a new model of competition is emerging in which, alongside traditional automobile manufacturers, companies specializing in battery production, electronics, software development, and digital mobility platforms play an increasingly significant role [2; 3; 6].

In addition to technological drivers, economic factors exert a substantial influence on the development of electric mobility. Declining production costs of lithium-ion batteries, economies of scale, intensifying competition among manufacturers, and government incentive programs have contributed to narrowing the price gap between electric vehicles and conventional internal combustion engine vehicles. Simultaneously, the expansion of global supply chains for critical raw materials – including lithium, cobalt, nickel, and graphite – has created new centers of international economic competition and has significantly affected the geographical distribution of battery manufacturing facilities [6; 9].

To evaluate the current trends in the development of the global electric vehicle market, *Fig. 1* presents the dynamics of worldwide electric vehicle sales over the past decade, providing a basis for assessing

both the scale and the key patterns of development in the international EV market.

The analysis of global electric vehicle sales dynamics (see *Fig. 1*) indicates a sustained trend of rapid expansion in the international electric vehicle market. Between 2016 and 2024, worldwide EV sales increased from 0.75 million to 17.3 million units, representing an increase of more than twenty-threefold. This growth rate ranks among the highest observed across high-technology sectors of the global economy [6].

Particularly rapid growth has been evident since 2020, when the global market entered a phase of large-scale electric vehicle adoption. While approximately 3.24 million electric vehicles were sold worldwide in 2020, sales more than doubled to 6.75 million units in 2021. This positive trend continued in subsequent years, driven by the expansion of government support programs for electric mobility, increased production capacity among leading automotive manufacturers, the continued development of charging infrastructure, and the gradual decline in lithium-ion battery costs [6; 8].

The strengthening of climate policies in the world's leading economies has also played a significant role in accelerating market development. The implementation of the European Green Deal, government incentive programs for electric vehicle purchases in China and the United States, and the widespread adoption of digital technologies for transport infrastructure management have substantially stimulated global demand for electric vehicles [10].

According to forecasts published by the International Energy Agency (IEA), this positive trend is expected to continue in 2025. Global EV sales are projected to exceed 20 million units, while the share of

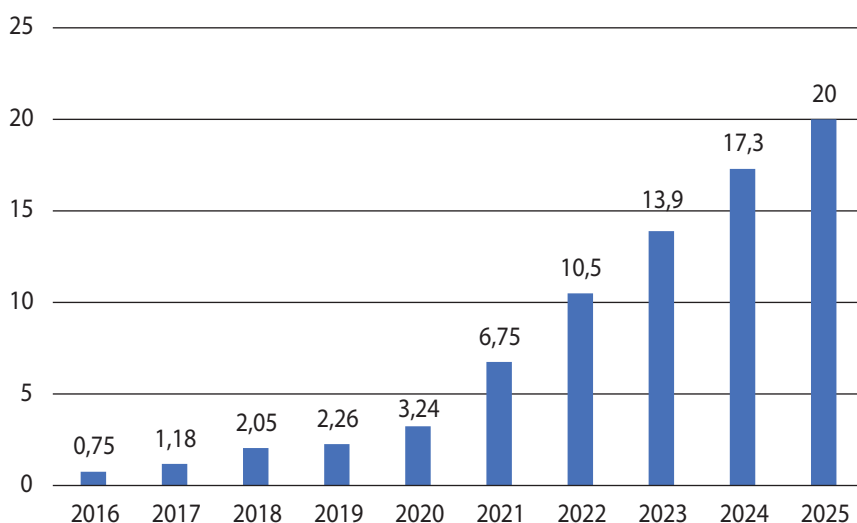


Fig. 1. Global Electric Vehicle Sales, 2016–2025 (million units)

Source: compiled by the authors based on [6; 7].

electric vehicles in total new passenger car sales is expected to surpass 25%. These projections confirm the ongoing transition of the global automotive industry towards a new development paradigm based on the principles of digital transformation and economic decarbonization [6].

Fig. 2 presents an analysis of the regional structure of the global electric vehicle market, as the geographical concentration of demand largely determines current trends in international electric mobility, investment flows, and the competitive landscape of the industry. Despite the worldwide expansion of electric vehicle adoption, sales remain unevenly distributed across regions due to differences in levels of economic development, government support policies, charging infrastructure availability, and manufacturing capacity [6; 9].

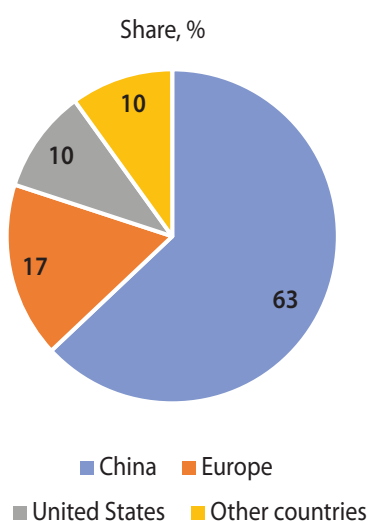


Fig. 2. Regional Structure of the Global Electric Vehicle Market in 2024 (%)

Source: compiled by the authors based on [6; 9].

The data presented in Fig. 2 indicate a high degree of concentration in the global electric vehicle market. China remains the undisputed market leader, accounting for approximately 63% of global EV sales in 2024. The country's dominant position is attributable to comprehensive government support for the industry, substantial investment in battery manufacturing, the development of domestic supplies of critical raw materials, and the large-scale production capacities of leading manufacturers, including BYD, SAIC, Geely, and NIO [6; 9].

Europe ranks second, representing approximately 17% of global electric vehicle sales. The European market is characterized by stringent environmental regulations, the active implementation of decarbonization policies, and the widespread use of financial incentives to encourage EV adoption. However, the gradual reduction of government subsidies in several

European Union Member States has contributed to a moderate slowdown in market growth.

The United States accounts for approximately 10% of the global electric vehicle market. The development of the U.S. market has been supported by the implementation of the Inflation Reduction Act, the expansion of domestic battery manufacturing, and the rapid deployment of fast-charging infrastructure [7].

The remaining countries collectively account for approximately 10% of global electric vehicle sales. Although their combined market share remains relatively modest, these markets exhibit the strongest long-term growth potential. This is particularly evident in India, Southeast Asia, Latin America, and several Middle Eastern countries, where national electric mobility strategies are gradually being implemented and favorable conditions for market expansion are being established [9].

Tbl. 1 presents a comparative overview of the countries that account for the largest share of global demand and shape current trends in the development of the electric vehicle industry. National markets serve as the principal drivers of technological innovation, battery manufacturing, digital transformation, and charging infrastructure development.

The data, presented in Tbl. 1, confirm the high concentration of the global electric vehicle market within a relatively small number of countries. China is the undisputed market leader, with annual electric vehicle sales exceeding 11 million units and electric vehicles accounting for nearly half of all new passenger car sales in the domestic market. This remarkable performance has been achieved through a consistent government policy supporting EV manufacturing, continuous investment in charging infrastructure, and the establishment of a fully integrated value chain encompassing the extraction of critical minerals, battery production, and vehicle manufacturing.

The United States and the leading European countries demonstrate distinct models of electric mobility development. The U.S. market is characterized by the rapid expansion of domestic manufacturing capacity and policies designed to stimulate consumer demand. In contrast, European countries place greater emphasis on stringent environmental regulations, the expansion of charging infrastructure, and comprehensive financial incentive schemes that encourage electric vehicle adoption. Particularly noteworthy is the experience of Norway, where the share of electric vehicles in new passenger car sales has approached full market electrification. This achievement has been made possible through a comprehensive public policy framework combined with long-term economic incentives.

Table 1

Comparative Characteristics of the Leading National Electric Vehicle Markets in 2024

Country	EV Sales (million units)	Share of EVs in New Passenger Car Sales (%)	Key Development Drivers
China	11.3	48	Global leader in electric vehicle production and sales
The United States	1.6	10	Rapid market growth driven by government support and expanding domestic manufacturing
Germany	0.57	20	The largest electric vehicle market in Europe
The United Kingdom	0.55	29	One of the fastest-growing electric vehicle markets in Europe
France	0.29	17	Stable market growth supported by government incentive programs
Norway	0.13	89	Global leader in electric vehicle market penetration

Source: compiled by the authors based on [6–15].

The rapid expansion of the global electric vehicle market is driven by the interaction of economic, technological, environmental, and institutional factors. Unlike the conventional automotive market, the development of electric mobility depends not only on market demand but also on proactive government policies, substantial investment in research and development, continuous expansion of charging infrastructure, and the digitalization of transport systems. At the same time, increasingly stringent international commitments to reducing greenhouse gas emissions have encouraged governments worldwide to implement comprehensive policies supporting both the production and adoption of electric vehicles.

To systematize the key determinants of international electric vehicle market development, *Tbl. 2* summarizes the principal factors exerting the greatest influence on the pace of market expansion.

The analysis, presented in *Tbl. 2*, demonstrates that the development of the international electric vehicle market results from the simultaneous interaction of several interrelated factors, among which government support, technological progress, and environmental policy play the most decisive roles. The combination of efficient regulatory mechanisms with large-scale investments in electric vehicle and battery manufacturing has created favorable conditions for the rapid expansion of the global EV market over the past decade.

One of the principal drivers of market growth is the continuous advancement of lithium-ion battery technology. Declining battery costs, improvements in energy density, and longer service life have significantly enhanced the competitiveness of electric vehicles relative to conventional internal combustion engine

vehicles. Equally important is the rapid expansion of charging infrastructure, which has increased the accessibility of electric mobility for consumers while improving the overall user experience and supporting broader market adoption.

At the same time, the digitalization of transport systems is becoming an increasingly important determinant of market development. The application of artificial intelligence (AI), Smart Grid technologies, digital charging infrastructure management platforms, and remote monitoring services enhances the operational efficiency of electric vehicles and facilitates their integration into the modern digital economy. These developments indicate that the future evolution of the international electric vehicle market will be driven not by isolated factors but rather by the synergy between technological innovation, government policy, and the digital transformation of the economy.

The statistical analysis and evaluation of the key determinants of international electric vehicle market development indicate that its evolution is shaped by a complex system of interrelated economic, technological, environmental, and institutional factors. Unlike the conventional automotive industry, the contemporary electric vehicle market is increasingly influenced by digital transformation, technological innovation, public policy, and global environmental initiatives. This provides a basis for summarizing the interrelationships among the principal market drivers in the form of a conceptual framework, presented in *Fig. 3*.

The conceptual framework, presented in *Fig. 3*, synthesizes the findings of this study and illustrates the interrelationships among the key factors shaping the contemporary development of the international elec-

Table 2

Key Factors Influencing the Development of the International Electric Vehicle Market

Factor	Degree of Impact	Manifestation of Impact
Government support	High	Tax incentives, subsidies, grant programs, and environmental regulations
Technological progress	High	Declining battery costs, extended driving range, and advances in manufacturing technologies
Charging infrastructure development	High	Expansion of fast-charging networks and residential charging facilities
Digitalization of the transport system	Medium–High	Smart Grid, artificial intelligence, and digital charging management platforms
Environmental policy	High	Implementation of the Paris Agreement, the European Green Deal, and decarbonization programs
Competition among manufacturers	Medium	Expansion of EV model portfolios, lower vehicle prices, and technological innovation
Investment in battery manufacturing	High	Construction of gigafactories and advancement of energy storage technologies
Consumer demand	Medium–High	Growing environmental awareness and increasing adoption of electric mobility

Source: compiled by the authors based on [5–10].

tric vehicle market. The proposed framework demonstrates that market evolution is determined by the combined influence of global institutional processes, technological innovation, public policy, and market mechanisms, which collectively accelerate the transition towards electric mobility.

The upper level of the framework represents the strategic drivers of international electric vehicle market development. These include global decarbonization policies, international climate commitments, government support measures, and advances in innovative technologies and digital infrastructure. Together, these factors determine the long-term development trajectory of the industry, stimulate investment activity, and create favorable conditions for scaling up electric vehicle and battery production.

The central component of the framework is the international electric vehicle market itself, whose development is characterized by increasing production and sales volumes, the expansion of charging infrastructure, the digitalization of transport systems, the integration of Smart Grid and Vehicle-to-Grid (V2G) technologies, and intensifying competition among leading manufacturers. The interaction of these elements facilitates the emergence of a global electric mobility ecosystem that integrates the transport, energy, and digital sectors of the economy.

The lower level of the framework reflects the synergistic effects generated by the development of the

international electric vehicle market. These include reductions in greenhouse gas emissions, enhanced energy security, improved economic competitiveness, increased innovation activity, and the acceleration of digital transformation within transport systems. Achieving these outcomes contributes directly to the implementation of the Sustainable Development Goals (SDGs) and supports the transition towards a low-carbon economy in line with contemporary global development trends.

Despite the rapid expansion of the international electric vehicle market, its future growth is accompanied by several economic, technological, and resource-related challenges.

Ensuring a stable supply of critical minerals.

The availability of lithium, nickel, cobalt, and graphite—essential components of modern battery technologies—remains a major strategic challenge. The concentration of mining and processing activities in a limited number of countries creates vulnerabilities within global supply chains, potentially affecting production costs and the long-term growth of the electric vehicle industry.

Uneven development of charging infrastructure. Although the global number of charging stations continues to increase, their geographical distribution remains highly uneven. The most advanced charging networks are concentrated in China, the European Union, and the United States, whereas inadequate infrastructure remains one of the principal barriers to

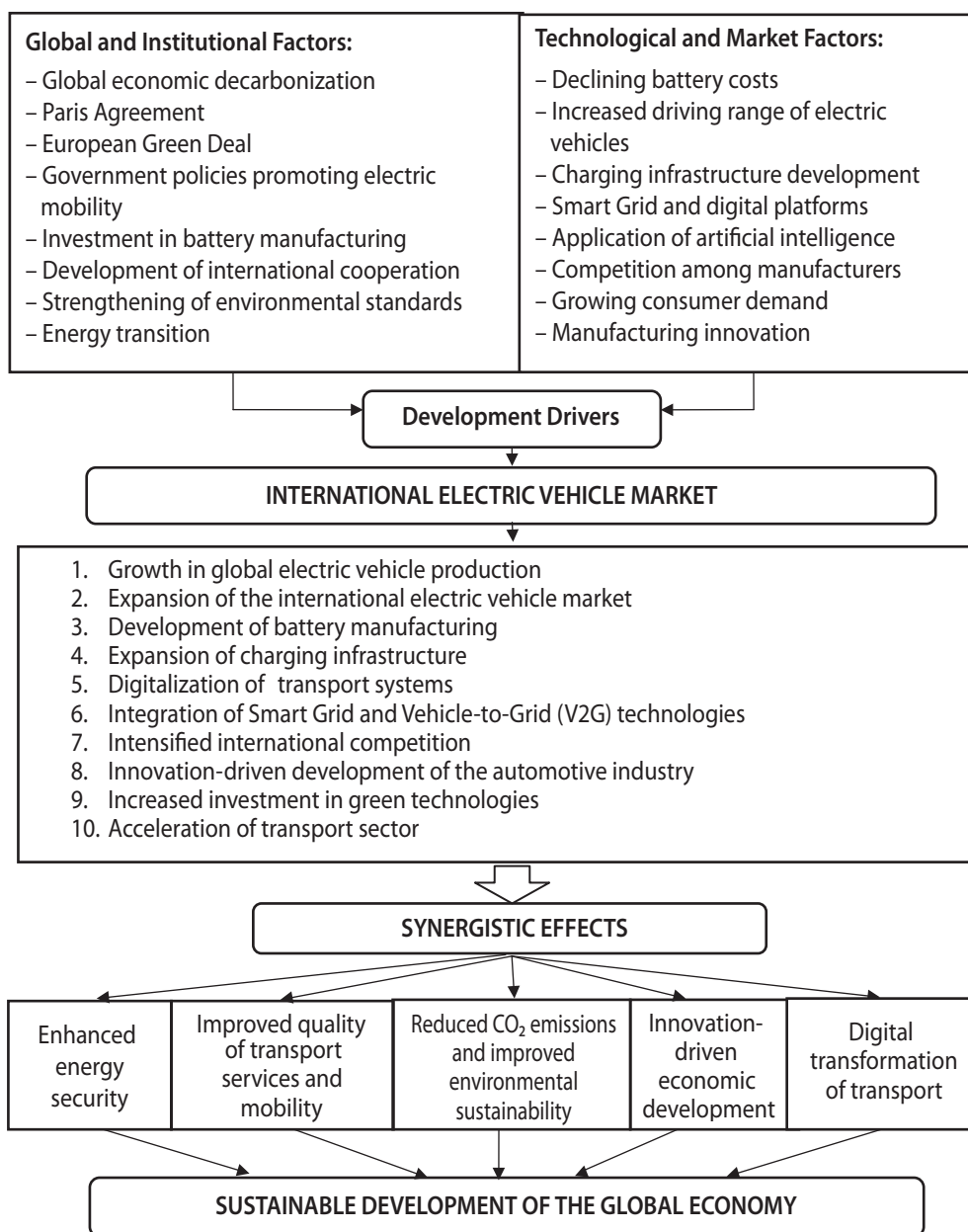


Fig. 3. Conceptual Framework for the Development of the International Electric Vehicle Market under Digital Transformation and Economic Decarbonization

Source: developed by the authors based on [5–15].

electric vehicle adoption in many developing economies. Further expansion of fast-charging networks will require substantial investment and the modernization of electricity infrastructure.

Technological advancement of battery systems.

Leading global manufacturers continue to invest heavily in the development of solid-state batteries, which offer higher energy density, improved safety, and shorter charging times. The commercial deployment of these technologies is expected to further reduce operating costs and strengthen the competitiveness of electric vehicles relative to conventional internal combustion engine vehicles.

The future development of the international electric vehicle market is increasingly associated with the digital transformation of the transport sector. The application of artificial intelligence (AI), the Internet of Things (IoT), Big Data analytics, and intelligent energy networks enables the optimization of charging processes, more efficient electricity consumption, predictive vehicle maintenance, and the further implementation of the Vehicle-to-Grid (V2G) conception. The integration of electric vehicles into digital energy systems creates new opportunities for balancing electricity grids and improving the utilization of renewable energy sources.

From a long-term perspective, the global electric vehicle market is expected to maintain its upward growth trajectory, driven by increasingly stringent environmental policies, continuous technological innovation, the digitalization of transport systems, and growing investment in electric mobility. At the same time, the international competitiveness of individual countries will increasingly depend on their ability to develop domestic manufacturing capabilities, secure access to critical raw materials, implement advanced digital technologies, and establish modern charging infrastructure. Under these conditions, the international electric vehicle market will remain one of the principal drivers of global economic decarbonization and the transition towards sustainable development.

CONCLUSIONS

The findings of this study demonstrate that the international electric vehicle market has become one of the most dynamic segments of the global economy, with its development driven by the complex interaction of economic, technological, institutional, and environmental factors. The continuous growth in electric vehicle production and sales reflects global trends towards the digital transformation of transport systems, the acceleration of economic decarbonization, and the strengthening of international climate policy.

The analysis of current trends in the global electric vehicle market indicates that its principal drivers include government support, technological advances in battery technologies, the expansion of charging infrastructure, the digitalization of transport systems, and intensifying competition among leading global manufacturers. The study further demonstrates that the efficiency and long-term development of the international electric vehicle market increasingly depend on the integration of the transport, energy, and digital sectors of the economy.

The research systematizes the principal factors determining the contemporary development of the international electric vehicle market and summarizes their contribution to the formation of a global electric mobility ecosystem. Unlike conventional approaches, this study proposes a conceptual framework that illustrates the interrelationships among global institutional factors, technological innovation, market mechanisms, and the expected socioeconomic outcomes of electric mobility development. The proposed framework may serve as an analytical basis for evaluating industry development trends and substantiating strategic public policy directions in the field of electric mobility.

The study also demonstrates that the future development of the international electric vehicle market depends not only on continued growth in production and sales but also on addressing a number of systemic

challenges. These include ensuring secure supplies of critical mineral resources, expanding charging infrastructure, advancing energy storage technologies, and integrating electric vehicles into intelligent energy networks. Addressing these challenges will contribute to enhancing the competitiveness of the global automotive industry, reducing greenhouse gas emissions, strengthening energy security, and achieving the Sustainable Development Goals.

Future research should focus on developing methodological approaches for the comprehensive assessment of the international electric vehicle market, designing integrated indicators to evaluate its competitiveness, examining the impact of digital technologies and public policy on the dynamics of electric mobility, and analyzing the interrelationships between electric vehicle market development, the energy transition, and the achievement of global decarbonization objectives. ■

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