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THE ROLE OF UKRAINIAN ENTREPRENEURS IN THE TRANSFORMATION OF GLOBAL SUPPLY CHAINS: CHALLENGES AND OPPORTUNITIES FOR COOPERATION WITH THE UNITED STATES

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Abstract. Relevance of the research is determined by the need for Ukrainian businesses to adapt to global shifts in the structure of production and logistics chains, which are undergoing significant transformation due to military aggression, growing geoeconomic competition, and the technological reorientation of global power centers. In the context of the West's drive to diversify supply chains and build resilient partnerships – particularly through nearshoring and friendshoring mechanisms – there arises a need to assess the potential of Ukrainian entrepreneurs to integrate into the renewed architecture of supply networks. Deepening cooperation with the United States is seen as a key driver for the modernization of Ukraine's industrial sector and the strengthening of transatlantic economic relations. *The aim of the research* is to examine the involvement of Ukrainian entrepreneurs in the transformation of global supply chains and to identify current directions of strategic cooperation with the United States, taking into account existing challenges and market prospects. *Research methodology* is based on the application of a systems approach, institutional analysis, comparative methods, and case studies of real economic cooperation between Ukrainian companies and international partners. Data have been synthesized from open-source analytical materials, government reports, and corporate strategies. *Research results* reflect the gradual adaptation of Ukrainian businesses to the requirements of new global logistics configurations, particularly through process digitalization, implementation of international standards (ISO 9001, ISO/IEC 27001, ISO/IEC 27701), and the development of production clusters oriented toward Western markets. It has been revealed that cooperation with the U.S. is shifting from a traditional export model to partnership-based integration in key sectors such as critical infrastructure, IT, pharmaceuticals, and energy. *Conclusions* confirm the existence of considerable, though partially realized, potential for Ukrainian enterprises in the emerging supply chain system. It has been established that the realization of this potential requires systemic changes in infrastructure, institutional regulation, and international technical compliance. *Prospects for further research* involve an in-depth analysis of mechanisms for engaging small and medium-sized enterprises in transatlantic supply chains, as well as an assessment of the impact of regulatory changes in cybersecurity, export control, and certification on the dynamics of Ukrainian-American economic cooperation.

Keywords: entrepreneurship, value chains, digital integration, infrastructure modernization, transatlantic cooperation.

JEL Classification: F23, L26, F14

1. Introduction

In today's environment, global supply chains are undergoing significant changes under the influence of geopolitical instability, military conflicts, pandemics, and increased trade protectionism. This creates new challenges for international trade, but also opens up opportunities for regional supply diversification. Ukraine, as a country with a developed agricultural and industrial sector, has the potential to play an active role in the transformation of global chains. Ukrainian entrepreneurs are increasingly focusing on new foreign markets, including the United States, developing production models that meet the requirements of open and stable economies.

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At the same time, Ukraine's participation in updated logistics and production schemes is limited by a number of problems. These include insufficient infrastructure, unstable regulatory environment, security risks, and lack of trust on the part of foreign partners. This calls for a scientific understanding of the mechanisms that would allow Ukrainian companies to effectively integrate into global chains, taking into account new requirements, such as transparency, reliability, and environmental responsibility.

The issue of cooperation with American partners is of particular importance, as the United States remains one of the leading centers of the global economy, which creates a demand for reliable suppliers. It is important to determine which forms of cooperation are most effective in the current environment, which sectors are most promising for Ukrainian exports, and how businesses from both countries can implement mutually beneficial projects. This task is not only economic but also applied, as the sustainability of the Ukrainian economy in the face of global instability depends on successful integration.

2. Literature Review

An analysis of scientific sources on the role of Ukrainian entrepreneurs in the transformation of global supply chains and opportunities for cooperation with the United States allows us to identify four main areas that shape the current vision of this issue.

The first area is devoted to the strategic adaptation of supply chains to crisis phenomena and global challenges. The study by A. S. Polyanska, V. B. Martynets, and O. Kaban proposed a model for optimizing supply chains in a crisis, which involves the operational restructuring of logistics flows (Polianska et al., 2022). V. Kryveschenko, G. Khmurkovskyi, T. Liadenko consider approaches to optimizing supply chains in the context of global crises, focusing on the diversification of partnerships and cooperation with international players, including the United States (Kryveshchenko et al., 2024). A. Zaverbnyi, Z. Dvulit, H. Vuek study the peculiarities of supply chain formation in the war and post-war period, emphasizing the importance of flexible strategies and international support (Zaverbnyi, 2022). M. Barskyi proposes a mechanism for reducing risks in global supply chains, which is important for increasing the sustainability of Ukrainian business (Barskyi, 2023). Further research should focus on analyzing specific mechanisms for adapting logistics processes to crisis conditions based on international experience.

The second area focuses on the integration of Ukrainian enterprises into global value chains. R. Sevastyanov considers the prospects for Ukraine's integration into European and global production and logistics systems, noting the potential for cooperation with US partners to strengthen Ukrainian enterprises technologically (Sevastyanov, 2024). V. Venger, N. Romanovska, and M. Chyzhevska identify strategic priorities for Ukraine's integration into global chains through the attraction of American technologies and investments (Venger et al., 2022). O. Pavlenko, D. Muzylyov, and V. Ivanov demonstrate effective logistics models and emphasize the possibilities of expanding such cooperation on the specific case of the supply of goods from the United States to Ukraine (Pavlenko et al., 2023). Further research in this area should focus on deepening the practices of technological and production partnerships between Ukrainian enterprises and American companies.

The third area concerns the impact of global crises, in particular Russia's war against Ukraine and the COVID-19 pandemic, on the transformation of international supply chains. N. N. M. Ngoc, D. T. Viet, N. H. Tien and co-authors analyze the risks of war for global chains, noting the importance of international support for Ukraine, in particular from the United States, to stabilize logistics (Ngoc et al., 2022). Z. Allam, S. E. Bibri, and S. A. Sharpe emphasize the need to reorient global supply chains in response to the pandemic and war, emphasizing the role of Ukraine and the United States in minimizing risks (Allam et al., 2022). J. S. Srai, G. Graham, R. Van Hoek and co-authors recommend reconfiguring and decentralizing supply chains to avoid crisis regions, which is especially important for Ukrainian enterprises in cooperation with American partners (Srai et al., 2023). T. Ben Hassen and H. El Bilali analyze the food consequences of the war and note the strategic value of the US-Ukrainian partnership for global food security (Ben Hassen & El Bilali, 2022). Further research should focus on specific models of Ukrainian-American cooperation in the context of global crises.

The fourth direction is related to the introduction of financial and managerial innovative solutions for the integration of Ukrainian enterprises into global supply chains. M. V. Kuzmenko, N. M. Petrukha, and Y. A. Shtokhman analyze financial innovations in the capital management of Ukrainian agricultural enterprises and note the prospects of attracting American financial experience (Kuzmenko et al, 2024). G. Ryzhakova, S. Petrukha, N. Petrukha and co-authors propose a methodology for creating value-added agri-food chains, emphasizing the possibilities of technological support from the United States (Ryzhakova et al., 2022). A. Ustenko, M. Sharvan, and T. Zharska describe the peculiarities of the supply and marketing policy of enterprises focused on international markets, noting the benefits of adapting American management standards (Ustenko et al., 2024). O. Kobylinsky and V. Litvinova analyze modern tools for logistics management in retail, emphasizing the prospects of using digital platforms from the

United States (Kobylinskyi & Litvinova, 2025). S. I. Grytsenko, A. V. Polishchuk identify current trends in global supply chains, emphasizing the potential of attracting American management practices to strengthen the position of Ukrainian enterprises (Grytsenko & Polishchuk, 2023). Further research on practical models of integration of American management tools into the activities of Ukrainian business, taking into account the specifics of local conditions, is promising.

Despite the growing number of studies aimed at analyzing the transformation of global supply chains in the context of geopolitical instability, a number of key aspects remain insufficiently studied. In particular, there is a lack of a comprehensive analysis of the capabilities of Ukrainian business to integrate into the new architecture of production and logistics systems against the backdrop of friendshoring and nearshoring strategies of Western countries. The specifics of the institutional, security, and infrastructure barriers that limit Ukraine's participation in global value chains are also not sufficiently disclosed. The empirical evidence on the practical interaction of Ukrainian companies with American partners, especially in high-tech industries and critical infrastructures, remains limited.

The proposed study fills these gaps by integrating systemic and case-oriented approaches, which allows us to combine strategic analysis with practical examples of successful participation of Ukrainian enterprises in transatlantic logistics and manufacturing projects. Summarizing actual models of cooperation, institutional decisions, and corporate strategies allows us to formulate sound recommendations for improving the competitiveness of Ukrainian business and deepening economic partnership with the United States.

3. Formulation of the Objectives of the Article (Statement of the Task)

The purpose of the article is to analyze the participation of Ukrainian entrepreneurs in the transformation of global supply chains and identify areas of cooperation with the United States, taking into account current challenges and market prospects. Objectives of the article:

– To study the transformation of global supply chains in the context of geopolitical instability and the strengthening of friendshoring and nearshoring policies.

– To analyze the potential of Ukrainian enterprises to integrate into the new logistics architecture and areas of cooperation with the United States in the context of technological partnership.

– To identify institutional, infrastructural, and security barriers to the participation of Ukrainian businesses in global chains and to propose ways to increase their competitiveness.

4. Materials and Methods

The study used a comprehensive approach that combines elements of systemic, institutional, and comparative analysis. The source base is based on official statistics, analytical reports, government strategies, and specialized studies that reflect the dynamics of global supply chain transformation and the participation of Ukrainian businesses in them.

To assess the potential of cooperation between Ukraine and the United States, a comparative analysis was used to identify differences between the models of economic partnership. The case study method was also used to analyze applied scenarios of Ukrainian enterprises' involvement in international production and logistics systems. The results were generalized based on a content analysis of relevant open access publications. This approach ensured the representativeness of the findings and the possibility of extrapolating the results to the broader economic context.

5. Results and Discussion

Over the past decade, global supply chains have undergone a significant transformation under the influence of a number of systemic crises, including trade wars, the COVID-19 pandemic, the full-scale war in Ukraine, the blockade of key logistics arteries, and increased geo-economic competition. The previous model was dominated by the strategy of globalization with the concentration of production in regions with low costs, minimal inventories, and high levels of interdependence. However, this system proved to be extremely vulnerable to external shocks, leading to delays in deliveries, rising costs, and a loss of confidence in the sustainability of logistics processes. As a response, countries and companies have begun to implement alternative approaches: regionalization, friendshoring, nearshoring, and reorientation to strategically safe destinations. These processes are accompanied by changes in the role of states, redistribution of investments, digitalization of chain management, and increased requirements for their sustainability (Table 1).

In today's environment, global supply chains are transforming due to the introduction of polycentric schemes, blurring of classical transportation routes and active use of digital technologies. The nearshoring model, the transfer of production closer to the sales market, ensures shorter delivery times, reduced transportation costs and a quick response to changes in demand. For example, the Hugo Boss brand has increased its production capacity in Izmir to ensure fast deliveries to Europe, reducing delivery time from more than three weeks to 3-7 days (Grytsenko & Polishchuk, 2023).

Friendshoring is the formation of chains with reliable geopolitical partners to minimize dependence on

Table 1
Key models of global supply chain transformation in times of geopolitical instability

Transformation model	Main characteristics	Motives for implementation	Examples of implementation
Nearshoring	Moving production closer to the end user	Reducing risks, reducing delivery time	Relocation of production from Asia to Eastern Europe, in particular Poland and the Czech Republic
Friendshoring	Building chains with economically or politically friendly countries	Increasing geopolitical security	Reorientation of the US from China to Mexico, India, and Vietnam
Onshoring (Reshoring)	Return of production to the national territory	Control over critical sectors	Support for strategic industries in the US and EU
Network duplication	Creating backup production facilities in several regions	Ensure flexibility and continuity	Diversification of electronics assembly between Taiwan, Malaysia, India
Digital integration	Use of AI, IoT, blockchain for monitoring and planning	Transparency, predictability, loss reduction	Implementation of digital supply chains by Siemens, Maersk

Source: compiled by the author based on (Ngoc et al., 2022; Allam et al., 2022; Srai et al., 2023; Ben Hassen & El Bilali, 2022)

high-risk regions. The European Union, through the European Chips Act, is creating a sustainable semiconductor ecosystem with the involvement of Canada, Australia, and Japan, which reduces dependence on China (Sourcing and Production, 2021). Similarly, the United States, through the CHIPS and Science Act, supports the construction of fabs for Intel and TSMC in Arizona and Texas, laying the infrastructure for critical technologies (European Chips Act, 2024). Network redundancy is aimed at creating backup capacities and routes, as well as fuel, thus maintaining network resilience (The CHIPS and Science Act, 2022). Finally, digital integration – the introduction of IoT, Big Data, and blockchain solutions – allows for risk prediction, inventory optimization, and rapid response to disruptions. According to a 2024 Maersk-Reuters study, digitally integrated companies have achieved an average reduction in insurance reserves by 18% and a significant reduction in logistics costs (Maersk reroutes Red Sea container ships back to Suez Canal, 2024).

In the context of the restructuring of global production and logistics systems, Ukrainian entrepreneurs are gaining new opportunities for integration due to a shift in emphasis towards regionalization, friendshoring approaches, and the search for alternatives to Asia as a production center. The rethinking of risks and the desire to reduce over-reliance on unstable regions is creating a window for new entrants to enter cross-border supply chains. Despite the war, Ukraine retains the potential to be part of the European manufacturing periphery, especially given the development of the contract manufacturing, agricultural processing, woodworking, logistics hubs, and IT outsourcing cluster. At the same time, the integration of Ukrainian companies into the new architecture requires not only competitive product costs, but also compliance with operational, environmental, and standard chain criteria that reduce vulnerability (Table 2).

In the context of the transformation of global supply chains, Ukrainian enterprises are demonstrating

Table 2
Key opportunities for Ukrainian companies to participate in international production and logistics systems

Direction of integration	Sectoral specialization	Competitiveness conditions	Form of participation in international chains
Contract manufacturing (B2B)	Light industry, furniture	Low costs, access to raw materials	Supply of components for international brands
Agricultural processing and export	Seeds, oil, concentrates	ISO, traceability, green logistics	Integration through certified exports
Logistics duplication and cross-docking	Warehouses, transportation hubs	Proximity to the EU, many modal hubs	Regional hubs for cargo distribution
Technological outsourcing	IT, engineering, support	EU-compatibility, high level of data security	R&D, digitalization, consulting
Critical materials and wood processing	Timber, plywood, panels	FSC, stability of supply	Supply of certified raw materials to the EU

Source: compiled by the author based on (Polianska et al, 2022; Zaverbnyi et al, 2022; Venger et al, 2022; Ryzhakova et al, 2022)

a growing ability to integrate into the new architecture of international production and logistics systems. This is due to the introduction of environmental standards, digital solutions, and compliance with the regulatory requirements of leading economies.

In the contract manufacturing sector, Ukrainian furniture companies are adapting the requirements of IWAY – IKEA's Supplier Code of Conduct, which covers transparency of the raw material chain, social standards, and environmental responsibility (The State of Digital Transformation, 2024). In the agricultural sector, Kernel is introducing digital accounting of CO_2 emissions in accordance with the requirements of the CBAM mechanism, which is documented in climate compliance reports (IWAY, 2025).

In the logistics sector, Dragon Capital has implemented the EDGE-certified M10 industrial park project in Lviv, which meets modern energy efficiency requirements and functions as a backup logistics hub for Western Ukraine (22. Kernel Holding, 2023).

The IT sector is represented by the example of SoftServe, which has ISO/IEC 27001:2022 (ISO/IEC 27001, 2022) and ISO/IEC 27701:2019 (ISO/IEC 27701, 2019; SoftServe, 2025) certificates, SOC 2 Type 2 audit (SoftServe Achieves, 2024) and internal policies aligned with the GDPR (SoftServe GDPR compliance statement, 2025). This allows the company to work effectively with European and American partners in sensitive industries.

In the pharmaceutical industry, Farmak passed an EU GMP audit in 2023 (Farmak participated in CPHI, 2023), presented its products at CPHI 2023 (Farmak successfully passed EU GMP inspection, 2023), and launched a project in Poland with the support of the EBRD (EBRD helps Farmak expand in Poland, 2024). Cronaspan Ukraine has also confirmed its FSC certification, which ensures the export of wood to the EU in accordance with the principles of sustainable production (Kronospan Rivne LLC FSC, 2025; FSC certificate database, 2025).

These examples show that Ukrainian businesses are not only responding to the challenges of global instability, but are also shaping their position as a technologically and regulatory mature participant in international supply chains capable of competing in the EU and US markets.

In today's context of global restructuring of production and logistics structures, economic cooperation between Ukraine and the United States is gaining increasing systemic importance. Both countries seek to ensure greater sustainability of their supply chains, technological independence, and diversification of access to strategic resources. For Ukraine, such cooperation opens up opportunities not only to attract foreign investment, but also to modernize its industry, increase exports of high-tech products, adapt to the requirements of Western regulatory regimes, and build a reputation as a reliable partner. In this context, an analysis of the key areas of partnership allows us to outline the structure of strategic cooperation and assess its potential in the context of economic security (Table 3).

In today's context of deep transformation of global production, cooperation between Ukraine and the United States opens up a number of structural opportunities for modernizing the Ukrainian economy through supply chain diversification, technology transfer, and regulatory integration. Ukrainian companies can be integrated into the new architecture of transnational production and logistics systems as suppliers of critical raw materials, local producers of high value-added components, or as R&D platforms for adapting products to Eastern European markets.

One of the key areas is defense industry cooperation. As part of the US-backed Defense Industry Compact, Ukraine is gradually turning into a platform for joint production and localization of US companies' production operations, which allows for compatibility with NATO technology chains and the formation of a domestic engineering base for sophisticated equipment (A Ukrainian titanium company, 2024).

Equally important is the development of cooperation in the mining and metals sector. Velta is implementing an industrial complex for titanium processing with the participation of American investors, which involves

Table 3

Key areas of economic cooperation between Ukraine and the United States in the context of global supply chain transformation

Area of cooperation	Potential form of interaction	Expected effect	Strategic role in chains
Critical materials	Investments, processing infrastructure	Long-term supplies, modernization of processing capacities	Reducing dependence on China
Military and technical partnerships	Joint production, R&D	Scaling up defense production	Strengthening regional security
Digital & IT	Outsourcing, joint AI/ cybersecurity projects	Increasing exports of technological solutions	Technological autonomy
Energy sector	Nuclear technologies, American fuel	Independence from Russia, modernization of nuclear power plants	Ensuring energy security

Source: compiled by the author on the basis of (Sevastyanov, 2024; Pavlenko, 2023; Kuzmenko, 2024; Ustenko, 2024)

not only the export of concentrate but also the creation of finished products for the US aviation and defense market, taking into account environmental and technological regulations (Ukraine says it held talks with US, 2025).

In parallel, new opportunities are being created in the energy sector. Ukraine has become one of the key US partners in the development of small modular reactors (SMRs). In July 2025, Energoatom signed an agreement with Holtec International to build SMR facilities and spent fuel storage casks, which will allow for local production in accordance with American standards and integrate Ukraine into the critical energy technology supply infrastructure (Energoatom agrees to build SMR plant, 2025).

To access such partnerships, Ukrainian IT and manufacturing companies are implementing international standards for cybersecurity and personal data protection. Certification according to ISO/IEC 27001 and ISO/IEC 27701 not only increases the trust of foreign customers, but also opens the way to contracts with the US government in the defense, healthcare, and financial services sectors (First building of M10 Lviv, 2025; ISO/IEC 27001, 2022).

Thus, in 2024-2025, practical opportunities for cooperation include not only financial support but also a deep industrial and technological partnership that allows Ukraine to integrate into Western-centered value chains as an equal participant.

Russia's full-scale aggression against Ukraine since February 2022 has created unprecedented obstacles to the integration of Ukrainian businesses into global supply chains. First of all, it is the destruction of critical logistics infrastructure ports, railway junctions, oil depots, warehouses – which makes it impossible to regularly export large quantities of products by sea, restricts rail transportation and reduces the reliability of land routes through the EU (Zaverbnyi et al, 2022; Ngoc et al, 2022). Constant shelling and blocking of the Black Sea force companies to resort to more expensive and unstable alternatives, such as transit through Romania or the Baltic states (Srai et al, 2023).

Institutional imperfections exacerbate the negative effect. Instability of regulatory policy, complexity of licensing procedures, delays in customs clearance, and limited digitalization of foreign economic processes reduce Ukraine's attractiveness as a partner (Ustenko et al., 2024). In particular, US importers point to difficulties with predictability of supplies, lack of sustainable logistics monitoring channels, and inconsistency of some Ukrainian standards with the requirements of US agencies, including the FDA (U.S. Food and Drug Administration (FDA), 2025), USDA (United States Department of Agriculture, 2025), and ITAR (International Traffic in Arms Regulations, 2025), which requires separate adaptation procedures when entering the US market.

In addition, general security risk is a critical factor: insurance rates for cargo from Ukraine remain 2-3 times higher than those from competing countries. The lack of an internal business continuity management system (BCP) based on ISO 22301 (Business Continuity Planning, 2025) and corporate crisis planning makes Ukrainian companies vulnerable to even minor destabilizations in the chain, which is unacceptable to American customers in the defense, healthcare, and energy sectors.

Another barrier is the insufficient level of localization of service and support in the United States. For many Ukrainian companies, the lack of legal presence, problems with obtaining export permits, difficulties with bank transfers, and limited experience with American orders in the framework of public procurement or joint technology projects are barriers to entering the US market (Pavlenko et al, 2023). This significantly limits the ability to participate in programs such as USAID for Trade (USAID – Trade and Competitiveness, 2025) or the Defense Industrial Base Resilience Program (Defense Industrial Base Resilience Program, 2025).

In the current context of global restructuring of production chains and geo-economic polarization, the task of increasing the competitiveness of Ukrainian enterprises is gaining not only an economic but also a strategic dimension. To ensure a sustainable presence in international supply segments, it is necessary to comprehensively strengthen operational adaptability, technological level and institutional compatibility with the requirements of Western partners, especially the United States.

Adaptation to international standards of quality, safety and information responsibility management is a key vector. Implementation of systems certified according to ISO 9001 (ISO 9001, 2015), ISO/IEC 27001 (ISO/IEC 27001, 2022), ISO/IEC 27701(ISO/IEC 27701, 2019) allows not only to confirm compliance with customer expectations but also to integrate into projects with high requirements for process transparency, which is especially relevant for the defense cooperation, pharmaceutical, electronics, and IT industries. In addition, the availability of business continuity procedures (BCP)(Business Continuity Planning, 2025) and compliance with NIS2 (Directive (EU) 2022/2555, 2022) or GDPR (Regulation (EU) 2016/679, 2016) are increasingly important criteria for selecting suppliers for American companies.

Equally important is the development of institutional readiness for cooperation. Companies should establish specialized export offices or engage local agencies in the United States that can provide legal, language, regulatory, and logistical support. The practice of companies that open representative offices in American industrial zones demonstrates higher efficiency in

establishing continuous supply and participation in the federal tender system.

As part of the trade and investment partnership with the United States, it is strategically important to intensify participation in technology transfer, joint production, or contract engineering programs. Ukrainian companies can act not only as subcontractors but also as full-fledged integrators in highly specialized segments, including IT outsourcing, electronic components, smart agriculture, and critical raw materials processing. Synergies are also possible in industries where the United States is interested in building additional backup production capacity outside of China.

Thus, the competitiveness of Ukrainian enterprises in cooperation with the United States should be based on a combination of regulatory compatibility, technological depth, and institutional flexibility. Only through a holistic adaptation to the Western business ecosystem is stable integration into the new architecture of global supply chains possible.

6. Conclusions

The study found that the transformation of global supply chains due to geopolitical turbulence opens up new opportunities for the integration of Ukrainian business into the updated architecture of international cooperation. It is shown that Ukrainian entrepreneurs are gradually adapting to the requirements of Western markets, in particular in the field of digital logistics, production diversification, and certification according to international standards. Cooperation with the United States has the potential to deepen, especially in the areas of technological partnership, localization of component production, and development of sustainable logistics solutions.

The key barriers identified include low institutional coherence, fragmented infrastructure, security threats, limited access to technology, and uneven compliance with regulatory requirements. The participation of Ukrainian companies in global high value chains, including those in the United States, remains spotty and mainly export-oriented.

The article offers a set of practical recommendations aimed at increasing the competitiveness of enterprises through compliance with ISO standards, compliance with NIS2 and GDPR requirements, development of logistics clusters and digital ecosystems. Promising areas for further research include the development of models for the inclusion of SMEs in transatlantic supply chains, assessing the effects of trade regimes with the United States and the impact of institutional reforms on the depth of integration.

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