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DIGITAL TOOLS FOR MANAGING FOREIGN ECONOMIC ACTIVITY OF AGRICULTURAL ENTERPRISES

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SUMMARY

Digital transformation covers a wide range of areas — from digital document management to comprehensive automation of export-import operations using intelligent analytical systems. The article examines modern trends in the implementation of digital technologies in the management processes of foreign economic activity of agricultural enterprises, including the use of ERP systems, cloud services, B2B interaction platforms, CRM and TMS systems, as well as big data analysis tools and blockchain technologies. Particular attention is paid to the impact of digitalization on the transparency of foreign trade operations, acceleration of logistics processes, optimization of contract and commodity flow management, as well as increasing trust from international partners. It has been established that digital solutions help reduce transaction costs, shorten the time for processing export documentation, improve communication with customs and regulatory authorities, as well as generally increase the competitiveness of agricultural producers in global agri-food markets. At the same time, the article emphasizes the key barriers limiting the digital transformation of foreign economic activity in the agricultural sector. Among them are insufficient digital literacy and management competencies of personnel, poor development of digital infrastructure, especially in rural areas, high cost of implementing innovative solutions for small and medium-sized agricultural enterprises, as well as insufficient trust in digital platforms and online sales channels. It is noted that the lack of comprehensive digitalization strategies and institutional support significantly limits the integration of agricultural enterprises into global digital value chains. To overcome these barriers, an active government policy is needed aimed at developing digital infrastructure, stimulating investment in digital technologies and improving digital competencies. An important role in this process is also played by international organizations and private investors, who are able to accelerate the digital transformation of the agricultural sector and ensure its sustainable development in foreign markets.

Key words: digital transformation, ERP systems, agriculture, digital infrastructure, international trade, government support, competitiveness, digital inequality.

INSTRUMENTE DIGITALE PENTRU GESTIONAREA ACTIVITĂȚII ECONOMICE EXTERNE A ÎNȚREPRINDERILOR AGRICOLE

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REZUMAT

Transformarea digitală acoperă o gamă largă de domenii — de la managementul digital al documentelor până la automatizarea complexă a operațiunilor de export-import prin utilizarea sistemelor analitice inteligente. Articolul examinează tendințele moderne privind implementarea tehnologiilor digitale în procesele de management ale activității economice externe ale întreprinderilor agricole, inclusiv utilizarea sistemelor ERP, a serviciilor cloud, a platformelor de interacțiune B2B, a sistemelor CRM și TMS, precum și a instrumentelor de analiză big data și a tehnologiilor blockchain. O atenție deosebită este acordată impactului digitalizării asupra transparenței operațiunilor de comerț exterior, accelerării proceselor logistice, optimizării managementului contractelor și fluxurilor de mărfuri, precum și creșterii încrederii din partea partenerilor internaționali. S-a constatat că soluțiile digitale contribuie la reducerea costurilor tranzacționale, scurtarea timpului de procesare a documentației de export, îmbunătățirea comunicării cu autoritățile vamale și de reglementare, precum și, în general, la sporirea competitivității producătorilor agricoli pe piețele agroalimentare globale. În același timp, articolul evidențiază barierele-cheie care limitează transformarea digitală a activității economice externe

în sectorul agricol. Printre acestea se numără nivelul insuficient de alfabetizare digitală și de competențe manageriale ale personalului, dezvoltarea slabă a infrastructurii digitale, în special în mediul rural, costul ridicat al implementării soluțiilor inovative pentru întreprinderile agricole mici și mijlocii, precum și lipsa de încredere în platformele digitale și în canalele de vânzări online. Se remarcă faptul că absența unor strategii cuprinzătoare de digitalizare și a sprijinului instituțional limitează semnificativ integrarea întreprinderilor agricole în lanțurile valorice digitale globale. Pentru depășirea acestor bariere este necesară o politică guvernamentală activă, orientată spre dezvoltarea infrastructurii digitale, stimularea investițiilor în tehnologii digitale și îmbunătățirea competențelor digitale. Un rol important în acest proces îl au și organizațiile internaționale, precum și investitorii privați, care pot accelera transformarea digitală a sectorului agricol și asigura dezvoltarea sa durabilă pe piețele externe.

Cuvinte-cheie: transformare digitală, sisteme ERP, agricultură, infrastructură digitală, comerț internațional, sprijin guvernamental, competitivitate, inegalitate digitală.

Problem statement. Modern agricultural production is increasingly integrated into global commodity chains, which requires from agricultural enterprises a flexible and highly efficient organization of foreign economic activity (FEA). However, the development of FEA in the agricultural sector faces a number of challenges: high market volatility, complexity of logistics processes, instability of trade conditions and regulatory requirements, especially in the context of sanctions pressure and global crises. These challenges are aggravated by insufficient digitalization of management processes, which reduces the adaptability and competitiveness of agricultural enterprises in international markets.

Despite the active spread of digital technologies in other sectors of the economy, the degree of their application in the management of foreign economic activity of agribusinesses remains limited. As noted by O. Radchenko [11] and M. Rudenko [12], the agricultural sector has been slow to adopt digital platforms in cross-border trade due to the lack of digital skills, limited access to ICT and lack of a strategic vision of digital transformation. Studies by J. Pyun [10] on digital supply chains emphasize the importance of integrating digital solutions to increase the sustainability of foreign trade operations. At the same time, the issues of digital document management, logistics data integration and the use of predictive analytics in exporting products remain unresolved for agricultural producers [1; 3].

Analysis of recent studies and publications. Scientific interest in the issues of digitalization of foreign economic activity (FEA) of agrarian enterprises has been actively developing in recent years due to the rapid development of digital technologies and the need to improve the competitiveness of the agro-industrial sector in the context of global integration. In particular, in the works of T. Matsyhora [8] and J. MacPherson [7] consider practical aspects of the application of digital platforms, blockchain technologies and the Internet of Things (IoT) in agrarian foreign trade. These technologies, as the authors note, contribute to increasing the transparency of supply chains, reducing transaction costs and improving agro-export logistics.

A similar position is taken by L. Kononenko and D. Prykhodko [6], emphasizing that digital solutions have a positive impact on the efficiency of interaction between exporters, logistics operators and end consumers. In the studies of S. Gunay [4] and M.-H. Ehlers [2] analyze examples of using electronic trade platforms and digital certificates of origin, which allows to significantly

simplify and speed up export procedures. In addition, the works of V.V. Havrylyshyn [5] and N. Mishurov [9] highlight the possibilities of using analytical tools based on Big Data and artificial intelligence (AI) to forecast export risks and adapt the foreign economic strategy of agribusinesses to the conditions of international markets.

However, the majority of existing publications are still focused mainly on the technical characteristics of digital tools, leaving the strategic aspects of their implementation without due attention. The issues of integrating digital solutions into the system of strategic management of foreign economic activity, transformation of business models of agribusinesses under the influence of digital technologies, as well as institutional and infrastructural barriers that hinder the active use of digital platforms in the agricultural industry are insufficiently studied. In addition, risks related to cybersecurity, lack of local digital competencies, and adaptation of international digital solutions to national agricultural conditions have not been fully explored.

Highlighting the unresolved parts of the overall problem. Despite the active development of theoretical and applied research in the field of digitalization of agrarian exports, there remains an obvious scientific gap consisting in the lack of a comprehensive analysis of the applicability of digital tools in the strategic management of foreign economic activity of agricultural enterprises. The problem is aggravated by the fact that the existing publications do not sufficiently take into account the specifics of agriculture, including seasonality, biological cycles and territorial separation of production. In addition, the impact of the institutional environment, such as the level of development of the regulatory framework, the state of digital infrastructure and government support measures, is often not adequately considered. Equally important is the issue of limited digital and human resources, especially in the context of small and medium-sized agricultural enterprises, for which the implementation of innovative solutions is associated with a high level of costs and organizational risks. There is also little academic literature on the adaptation of digital platforms to international trade and certification requirements, as well as on mechanisms for managing the risks of digitalization, including cybersecurity threats and the security of commercially sensitive information. All these factors indicate the need for further scientific understanding of the digital transformation of FEA in the agricultural sector from an interdisciplinary perspective that combines technology, strategic management and industry specifics.

Formulation of the objectives of the article (problem statement). The purpose of the study is to substantiate the strategic directions and tools of digital transformation of foreign economic activity of agrarian enterprises in the context of global digitalization of agribusiness, as well as to identify the stages and features of digitalization as a factor in improving competitiveness in international markets.

The relevance and practical significance of the study are justified by the need to improve the competitiveness of the agricultural sector through the transition to digital management models, which is especially important for countries with export-oriented agricultural economy, such as Ukraine, Kazakhstan and the Republic of Moldova. For these countries, agricultural exports are an important source of foreign exchange earnings and a factor of economic sustainability, and the implementation of digital solutions is a key area of adaptation to the requirements of the modern global market.

Materials and methods. The research used a set of methods and approaches that provide an integrated and comprehensive study of the processes of digital transformation of foreign economic activity of agrarian enterprises.

The information base of the study was made up of:

- legal acts of Ukraine, Kazakhstan and the Republic of Moldova regulating foreign economic activity and digitalization of the agricultural sector;
- statistical data from the State Statistics Service of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine - on external economic indicators of the agribusiness sector and the level of digitalization; the National Bureau of Statistics of the Republic of Moldova - on the dynamics of agricultural exports, digital literacy and ICT infrastructure in the agricultural sector; the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan - on investments in the digitalization of agriculture and export flows;
- international sources: World Bank, Eurostat, Food and Agriculture Organization of the United Nations (FAO) and Organization for Economic Cooperation and Development (OECD) - for global and regional comparisons in the field of digitalization and transformation of FEA in the agricultural sector.
- analytical reports of international and national research organizations, including McKinsey & Company, PwC, Ernst & Young, World Economic Forum and others;

The methodological basis of the research was based on the application of a set of scientific methods, each of which ensured the achievement of certain goals of the analysis. The monographic method was used to study the theoretical foundations and conceptual approaches to digitalization and organization of foreign economic activity. Comparative analysis allowed us to compare digital strategies and practices applied in the agricultural sector of Ukraine, Kazakhstan and the Republic of Moldova, revealing both common features and specific characteristics. Economic and statistical analysis was used to process quantitative data and assess the current level of digitalization, as well as key indicators of foreign economic activity of agricultural enterprises. SWOT analysis helped to identify strengths and weaknesses, as well as potential opportunities and threats associated with the digital transformation of the agricultural sector. System analysis provided a holistic understanding and justification of the integrated approach to the digital transformation of foreign economic activity. The modeling method was used to build possible scenarios of digital development and develop a strategic model for the transformation of agrarian enterprises in the context of global digitalization.

The application of these methods allowed to ensure the scientific validity and reliability of the obtained results, as well as to form practical recommendations to improve the efficiency of digital transformation of foreign economic activity of agricultural enterprises in the context of global digitalization and international economic integration.

Presentation of the main material of the research.

In the conditions of rapid development of digital technologies, the agro-industrial complex is moving to a qualitatively new level of organizational and technological development. Digitalization is becoming an integral element of competitiveness of agricultural production and foreign economic activity of agricultural enterprises. Depending on the degree of maturity of digital transformation, three key levels of digitalization can be distinguished, each of which reflects a certain stage of integration of digital solutions into the business model of an agribusiness enterprise. These levels consistently demonstrate the transition from basic automation of processes to the creation of high-tech ecosystems that ensure sustainable development and effective management of all resources. Table 1 illustrates the content, features and key elements of digitalization at each of the levels.

Table 1 . Stages of digitalization of the agro-industrial complex

Level	Characterization	Key elements of digitalization	Features
Level 1 "An agricultural enterprise with efficient business processes"	Formation of basic digital infrastructure	Implementation of internal accounting system, digital back office, key performance dashboards	Initial stage of digitalization, focus on increasing transparency and manageability
Level 2 "Digital technology agrarian company"	Application of innovative agro-technologies	Artificial intelligence (AI), machine learning (ML), computer vision (CV), precision farming, omnichannel supply chains	Increased efficiency of operations, automation, continuous innovation

Level 3 "Agroholding ecosystem".	Creating a digital agroecosystem	Innovation infrastructure, integration of all processes and participants into a single digital environment	High level of digital maturity, system management and sustainability
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Source: created by the author

At the first level is an agricultural enterprise with efficient business processes. Here, the focus is on internal accounting systems and the introduction of a unified digital "back-office" platform, which should be fully integrated into the production cycle. Dashboards are being designed to display key business indicators in real time and a database is being created to monitor production results.

The second level is characterized by the transition to the status of a digital technology company. In this stage, innovative technologies such as precision farming, artificial intelligence (AI), computer vision (CV) and machine learning (ML) are applied. Supply chains are becoming omnichannel and include both online and offline channels. Various technological innovations are constantly being introduced to make processes more efficient.

The third level represents the agroholding ecosystem. At this stage, a full-fledged innovation infrastructure is formed, where technology, production and sales processes, as well as interaction with external partners are integrated into a single digital space. This enables the creation of a sustainable business model focused on high productivity and flexible resource management.

The active introduction of digital technologies in the management of foreign economic activity of agricultural enterprises is due to the need to improve their competitiveness in global markets, reduce transaction costs, ensure the transparency of foreign trade operations, and adapt to the conditions of the digital economy.

One of the most important areas of FEA digitalization is the introduction of corporate information systems, in particular ERP and CRM platforms, which allow to combine the processes of logistics, warehousing, financial accounting, contract work and interaction with foreign partners in a single digital loop (Table 2). ERP-systems, such as SAP, Oracle NetSuite or domestic solutions like "1C:ERP", enable agricultural enterprises to automate accounting of export-import operations, monitor currency receipts, execute customs documents and maintain accurate reporting on all stages of a foreign economic transaction. CRM-systems (e.g. Salesforce, Bitrix24) are used for systematic management of customer relations, which is especially important for enterprises actively working in international markets and concluding long-term export contracts.

Table 2. Main digital tools of FEA of agricultural enterprises

Tool	Assignment	Example
CRM systems (Customer Relationship Management)	Export client management, transaction planning, transaction history	Bitrix24, Salesforce
ERP systems (Enterprise Resource Planning)	Integration of logistics, procurement, warehouses, finance and foreign economic affairs	SAP, 1C:ERP, Oracle NetSuite
TMS (Transportation Management Systems)	Automation of logistics and supply control	Trans.eu, CargoSmart
Electronic Document Management Systems (EDMS)	Registration of export declarations, contracts, CMR, invoices	M.E.Doc, okay.
Platforms for electronic trade (eTrade, B2B)	Search and conclusion of contracts with foreign buyers	Alibaba, TradeKey, AgroExportUkraine
Digital customs systems	Simplified cargo clearance, customs clearance tracking	ASYCUDA (UNCTAD), "Єдине вікно" (Ukraine)
Monitoring and analytics systems (BI-tools)	Export risk assessment, analysis of prices on world markets	Tableau, Power BI, UN Comtrade

Source: created by the author

The presented SWOT-analysis (Table 2) of the digital transformation of foreign economic activity of agricultural enterprises allows us to comprehensively assess the strategic position of the industry in the conditions of global digitalization. Among the strengths of digital transformation is its ability to automate routine foreign trade processes, including document management, which significantly accelerates logistics and financial operations. This contributes to increased transparency and manageability of export-import activities, and allows agricultural enterprises to make more active use of international electronic trading

platforms and marketplaces. Digital tools, including e-commerce and online marketing, create conditions for expanding sales markets beyond traditional channels, which is especially relevant for small and medium-sized producers seeking to enter foreign markets.

At the same time, weaknesses indicate a number of institutional and technical limitations. One of the key barriers remains the insufficient level of development of digital infrastructure in rural areas, in particular, limited access to high-speed Internet. In addition, the agribusiness sector faces a shortage of qualified IT specialists, which makes it difficult to implement and

maintain complex digital solutions. The high cost of technology limits the opportunities for small and medium-sized enterprises, and low levels of digital literacy among staff slow down adaptation to new business models.

Looking ahead, the opportunities of digital transformation look very promising. Agricultural enterprises have a chance to integrate into global digital platforms, including electronic logistics systems and digital tenders, which opens up new channels for international cooperation. The use of big data analytics allows to forecast export volumes and adapt to changes in demand on international markets. In addition, the introduction of digital certificates and traceability systems can significantly increase the confidence of foreign partners in agricultural products from Ukraine, Kazakhstan or Moldova.

However, despite the potential, the threats of digitalization are also significant (Figure 1). First of all, we are talking about cyber risks and threats of confidential information leakage, which is becoming more and more relevant as strategically important foreign economic information is digitized. In addition, agricultural enterprises are becoming dependent on foreign digital infrastructure, platforms and software, which in the context of sanctions pressure and international instability can turn into serious risks. Finally, the instability of legislation and uncertainty in the regulation of the digital economy, especially in the CIS countries, as well as external economic barriers, including sanctions and trade restrictions, can significantly slow down the process of digital transformation.

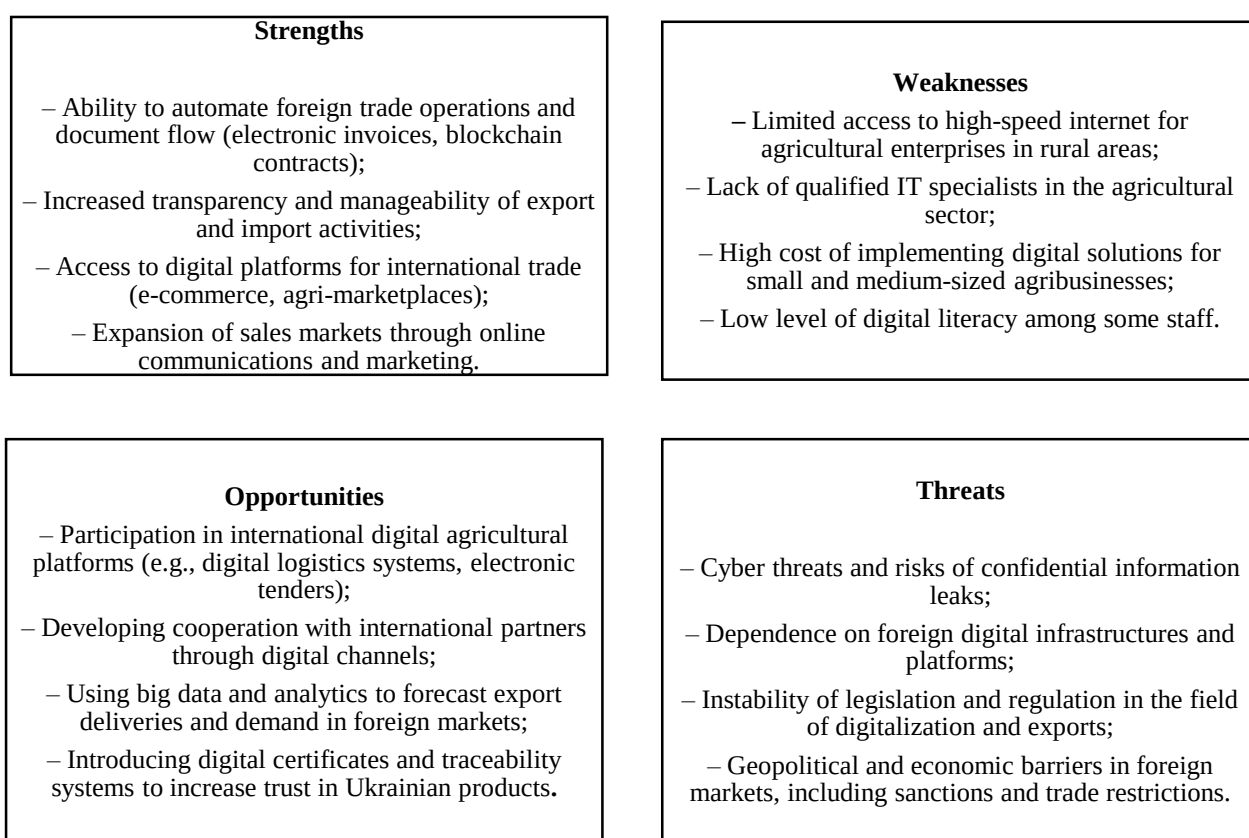


Figure 1. SWOT-analysis of digital transformation of foreign economic activity of agrarian enterprises

Source: created by the author

Thus, successful digitalization of agricultural enterprises' FEA requires not only technological modernization, but also sustainable institutional support, development of digital literacy and cybersecurity.

It is worth noting that in the period from 2020 to 2024, the digital transformation of the agricultural sector in the world has become systemic and covered all key areas of activity - from precision farming to global supply chain management. This process was accompanied by a rapid growth of investments in digital technologies, active implementation of solutions based on artificial intelligence (AI), the Internet of Things (IoT), robotics and cloud platforms. The main drivers of digitalization

have been the need to increase productivity, adapt to climate change and meet the global demand for food as the world's population grows.

At the initial stage (2020-2021), digital agriculture remained fragmented - technologies were predominantly implemented by large agroholdings and multinational corporations. However, as early as 2022-2023, there was a marked expansion of digital solutions in medium-sized farms and cooperatives. This was facilitated both by government initiatives (e.g. in the EU, the US and China) and the expansion of the market for cloud-based agroservices targeting small and medium-sized producers.

The global digital agriculture market size exceeded USD 22 billion in 2023. According to forecasts, it may triple by 2032. North America, the European Union, China and India remain the most active regions for the implementation of digital solutions. The main investments are aimed at developing precision farming, real-time agro-monitoring systems, AI-based agribusiness support platforms, and automation of logistics and crop management processes.

Against the background of rapid growth of e-commerce, the use of international trade digital platforms

(B2B) such as Alibaba, Tridge, AgroExportUkraine, through which Ukrainian, Kazakh and Uzbek agro-exporters find new contractors, participate in international tenders, analyze demand and price dynamics, has become more active. According to UN ESCAP research, in 2024 the share of Ukrainian agribusinesses represented on such platforms amounted to 25%, in Kazakhstan - 19%, and in Moldova - about 17%. Although the figures are still low, the growth rates are impressive: the annual increase in the share of users on these platforms averages 8-10% (Table 3).

Table 3. Statistics of digital tools implementation in agrarian FEA

Indicator	Ukraine	Kazakhstan	Moldova
Share of agribusinesses using EDI for FEA, %	48	36	31
Use of CRM/ERP in export activities, %	41	29	24
Presence on international B2B platforms, %	25	19	17
Use of BI-analytics and digital logistics, %	15	12	10

Source: created by the author

Along with the benefits of digitalization of foreign economic activity, the agricultural sector faces a number of barriers hindering this process. The main ones include limited access to high-speed internet in rural areas, insufficient digital literacy among employees of agricultural enterprises, high costs of implementing modern digital solutions such as ERP systems, and distrust of digital platforms on the part of traditional market players. These challenges are particularly acute for small and medium-sized agribusinesses, which need institutional support, access to concessional finance and systematic training of staff. In the context of low-income countries, digital transformation requires the active involvement of the government, international organizations and the private sector to create the necessary conditions and address the digital divide.

An important direction is the introduction of state support in the form of subsidies and specialized programs similar to the European initiative Digital4Agriculture. Such programs should be aimed at providing financial assistance to agribusinesses in implementing IT solutions, digital platforms for export, electronic document management systems and marketplaces, as well as providing preferential lending for innovative digital projects in the agribusiness sector.

At the same time with financial support, it is necessary to focus on improving the skills of agro-exporters. Without appropriate knowledge and skills, digitalization of foreign economic activity will be limited. Therefore, it is worth developing educational

programs and trainings on the use of digital foreign trade services, such as electronic certification, customs procedures, and online trading platforms. This training should be available both within agrarian universities and through online courses, webinars and consulting centers.

Of particular importance is the integration of agro-producers with international digital trading systems. It is about connecting to global electronic platforms for B2B and B2C trade, such as Alibaba, Tridge or GlobalG.A.P., participating in digital exhibitions, electronic trade missions, as well as implementing digital certification and traceability systems based on blockchain technologies. This will increase the transparency of foreign economic transactions and facilitate access to new foreign markets.

In addition, effective digitalization is impossible without appropriate infrastructure, especially in rural and remote regions. The development of a sustainable Internet, the creation of digital hubs, equipping agribusinesses with digital devices (sensors, scanners, RFID systems), and the launch of regional platforms that integrate information on exporters, logistics, and certification procedures all play an important role here.

Three development scenarios (Table 4) are proposed for strategic planning of digital transformation of foreign economic activity of agrarian enterprises: conservative, moderate and innovative. Each of them differs in the level of implementation of digital solutions, required resources and expected results.

Table 4. Development of strategic development scenarios (modeling)

Scenario	Characterization	Prerequisites
Conservative	Partial implementation of digital solutions (document management and logistics only)	Minimal investment, external IT support
Moderate	Full digitalization of export operations and sales channels	Medium level of investment, staff training, ERP/CRM
Innovative	Integration into international digital ecosystems and use of AI/Big Data	High investments, partnerships with technology companies

Source: created by the author

The conservative scenario assumes partial implementation of digital tools, mainly in the areas of electronic document management and logistics. In this case, enterprises are limited to basic digital services aimed at reducing administrative costs and optimizing interaction with regulatory authorities. This scenario requires minimal investment and can be implemented with the support of external IT contractors or at the expense of government programs. The main advantage is low cost and quick effect in terms of increased transparency and reduced paperwork. However, the potential for expanding foreign economic activities remains limited.

The moderate scenario focuses on the full digitalization of export operations and all sales channels. Enterprises switch to modern ERP and CRM systems, integrate online channels of interaction with buyers and logistics partners, and automate certification and customs clearance processes. This scenario requires a medium level of investment, as well as active staff training for the effective use of new digital solutions. The moderate scenario provides significant efficiency gains, reduced operating costs and increased export opportunities, especially in a volatile environment.

The Innovation Scenario is the most ambitious transformation model based on the deep integration of agricultural enterprises into international digital ecosystems. It involves the use of artificial intelligence, Big Data, blockchain certification, predictive logistics and digital trading platforms. This scenario requires significant financial investments, strategic partnerships with technology companies and a change in management culture. It focuses on building sustainable competitive advantages and creating digital supply chains with high added value.

Consequently, the choice of scenario depends on the scale of the enterprise, its financial capabilities, level of digital maturity and ambitions in external markets. Each scenario can be adapted depending on the specifics of the region, the state of infrastructure and government support.

Thus, digital tools are becoming an integral part of the foreign trade management system in the agricultural sector. Their use allows to speed up operations, increase accuracy and transparency, and reduce costs. At the same time, the further spread of digital solutions in foreign economic activity requires systemic government support, digital modernization of infrastructure, as well as the development of human capital in agriculture. Only then will agricultural enterprises be able to fully integrate into global value chains and increase their export potential.

Conclusions and further prospects of the study.

The research has confirmed that the digital transformation of the agro-industrial complex is becoming a key factor in increasing its competitiveness and sustainable development in the context of globalization. Digitalization covers not only internal production processes, but also foreign economic activities, which contributes to increased transparency, accelerated logistics and trade operations, as well as strengthening the position of agricultural enterprises in international markets.

Analysis of digital solutions applied in the sphere of foreign economic activity of agricultural enterprises confirms their effectiveness in automating business processes, reducing transaction costs and expanding export potential. Tools such as ERP, CRM, TMS, electronic document management systems, B2B platforms and business intelligence systems are becoming an integral part of foreign economic activity management.

It has been established that the level of digitalization of agricultural enterprises can be classified in stages: from the basic implementation of digital accounting systems to the creation of complex digital ecosystems. This allows enterprises to use resources more efficiently, adapt to external challenges and form sustainable channels of international cooperation.

The results of the SWOT-analysis show a significant potential of digital transformation for agrarian foreign economic activity, especially in the aspects of expanding markets and integration into global digital supply chains. However, certain weaknesses, including low digital literacy of personnel, insufficient technical infrastructure in rural areas, and dependence on foreign software, prevent this potential from being fully realized. Increasing cyber risks and regulatory instability in individual countries pose an additional threat.

Digitalization of the agricultural sector in countries such as Ukraine, Kazakhstan and Moldova shows positive dynamics. Especially active is the development of electronic document management, the use of digital platforms and participation in cross-border e-commerce. Despite the existing challenges, agricultural enterprises in these countries demonstrate readiness for digital change and a desire to use the opportunities of the digital economy to improve the efficiency of foreign economic activity.

Prospects for further research include the development of adaptive models of digital transformation of agrarian enterprises, taking into account industry specifics, institutional conditions and levels of digital maturity.

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