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DIGITALISATION OF CUSTOMS AS A PREREQUISITE FOR INTEGRATION INTO THE EUROPEAN SPACE

Purpose. *The article aims to provide a theoretical and practical substantiation of the digital transformation of customs administration as a "trust infrastructure" within the framework of Ukraine's sectoral convergence with the European Union (EU), and to demonstrate how the standardization of data and procedures contributes to balancing legitimate trade facilitation with customs control.*

Methods. *The study employs an institutional and legal analysis of EU regulations and international standards related to the digitalization of customs procedures within the customs authorities of Ukraine. A comparative analysis of the functioning of digital customs systems and customs risk management mechanisms in the EU is applied, together with a content analysis of official strategic and policy documents. In addition, a systemic approach is used to generalize the role of digital technologies, electronic data exchange, and the Authorised Economic Operator (AEO) programme.*

Results. *The study substantiates that the digital rethinking of customs administration forms a "trust infrastructure" that ensures effective interaction between the state and business in international trade. It is established that the standardization of data, the implementation of electronic information exchange, and the use of integrated customs IT systems facilitate the transition to a risk-oriented model of customs control. The findings show that digital customs administration tools, including pre-arrival information systems and the AEO programme, improve the accuracy of risk profiling and allow control efforts to be focused on high-risk operations. It is also demonstrated that aligning Ukraine's digital customs standards with EU practices enhances the effectiveness of customs risk management.*

Conclusions. *The article demonstrates that the digitalization of customs administration plays a key role in building a "trust infrastructure" that supports Ukraine's integration into the EU customs and digital space. Standardized data and procedures within systems such as NCTS, ICS2, and SEED+ enable the transition to a risk-oriented model of customs control. The use of pre-arrival data and automated risk analysis shifts the focus from physical inspections to analytical risk profiling. Institutional trust mechanisms, particularly the AEO programme, strengthen cooperation between customs authorities and businesses. Overall, digital transformation improves data quality and ensures a balance between trade facilitation and effective customs risk management.*

Key words: electronic data exchange, customs control, risk management, Authorised Economic Operator, foreign trade, customs logistics, customs simplification, European integration.

JEL Classification: F13, F15, H83, O33.

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Introduction. Ukraine's European integration process has entered a phase of deep sectoral and institutional convergence, in which digitalization functions not as a mere "add-on" to reforms but as a systemic instrument for transforming public administration, the economy, and the legal environment (EC, 2026a). Within the EU enlargement cluster methodology, digital transformation and customs integration are primarily concentrated in Cluster 3, "Competitiveness and Inclusive Growth", particularly in Chapter 10, "Digital Transformation and Media", and Chapter 29, "Customs Union". This framework establishes the parameters for the convergence of public administration mechanisms, procedures, and digital standards (CEU, 2025). Within this logic, digitalization is interpreted as a trust infrastructure of that reduces transaction costs, limits administrative discretion, and enhances the predictability of interactions between the state and business. The EU views Ukraine's digital resilience as an element of the broader architecture of European security and economic stability, which is reflected in the scale of "Team Europe" support and in the linkage

of financial assistance to the implementation of reforms and the achievement of specific indicators (EP, 2025). According to estimates by EU institutions, the total volume of support provided to Ukraine by the EU and its Member States amounts to approximately EUR 177.5 billion, encompassing financial, humanitarian, and military components. A strategic financial "anchor" is the Ukraine Facility, amounting to EUR 50 billion for the period 2024–2027. It is structured around three pillars, with the core component being budgetary support based on the Ukraine Plan, which includes a set of reforms and investment measures, accompanied by an enhanced system of audit and control (CEU, 2024). In this context, the economic rationale for digitalization lies not only in improving the quality of public services but also in strengthening competitiveness. For instance, analytics of Organisation for Economic Co-operation and Development (OECD) indicate that even a 1% reduction in global trade costs may generate an increase in global income or savings exceeding USD 40 billion. This positions digital and procedural reforms as a component of a "growth economy", rather than merely an instrument of administrative modernization (OECD, 2018).

The development of IT synergy between Ukraine and the EU unfolds across three complementary dimensions. First, it involves the modernization of customs and logistics infrastructure through the implementation of interoperable IT frameworks for transit and data exchange, primarily aimed at enhancing customs risk management. In this regard, Ukraine launched the application of NCTS Phase 5 on 22 April 2024, which is critically important for the standardization of transit procedures and for aligning them with the practices of the Common Transit system in Europe (DMSU, 2026a). Second, convergence is taking place with the European legal framework governing electronic identification and trust services (eIDAS) and with the broader objectives of the Digital Single Market (DSM), where key priorities include the mutual recognition of electronic identification means, legal certainty of electronic transactions, and the interoperability of digital services (EC, 2015). Third, Ukraine is strengthening its participation in supranational programmes aimed at developing digital capacities and infrastructure. In particular, this includes association with the Digital Europe Programme, which supports projects in the fields of supercomputing, artificial intelligence (AI), digital skills, and innovation hubs, as well as the use of opportunities provided by the Connecting Europe Facility (CEF) as an instrument for investment in transport, energy, and digital networks (EC, 2026b).

Accordingly, one of the primary objectives of this study is to analytically document progress along these tracks and to identify the causal relationships between digital implementations and the effectiveness of public policy, focusing on governability, transparency, reduced interaction costs, and procedural efficiency. The study also aims to outline barriers such as interoperability, data quality, regulatory alignment, and cyber resilience that are critical for Ukraine's continued advancement toward full EU membership.

Transformation of Ukrainian customs space. Ukraine's accession to the Convention on a Common Transit Procedure constitutes a systemic element of aligning customs administration with EU practices and a prerequisite for integration into the common transit area. The Convention entered into force for Ukraine on 1 October 2022. This enabled the introduction of uniform transit rules among participating countries and ensured the mutual recognition of control formalities in transit operations. Within the framework of the Convention, the common transit procedure is applied among 37 countries, including EU Member States and other European countries, which determines the scale of the effects resulting from the unification of transit rules for Ukrainian exports and imports. The technological core of the Convention is the New Computerised Transit System (NCTS), an IT system that enables the exchange of transit information between customs administrations and supports the standardized life cycle of a transit operation. In procedural terms, NCTS codifies the principle of "one means of transport – one declaration – one guarantee", whereby transit is carried out from the customs office of departure to the customs office of destination under a single transit declaration and a single guarantee valid throughout all countries along the route (DMSU, 2026b).

This approach serves as an instrument for the standardization of customs control through several mechanisms:

a) the harmonization of data structures and status categories of transit messages;
b) the mandatory provision of guarantees for transit movements;
c) the application of sealing procedures recognized by participating countries;
d) the possibility of transit simplifications, including a comprehensive guarantee with the possibility of reduction up to a guarantee waiver, as well as the status of authorized consignor/consignee.

In the development of NCTS, the key elements are the versioned "phases", which modify data structures and the set of messages used within the system. Ukraine fulfilled its obligation to transition to NCTS Phase 5 on 22 April 2024, thereby ensuring compatibility with the overall evolution of the system in the countries participating in the Convention. Further synchronization of the operational environment was strengthened by the pan-European transition to new NCTS releases, including the completion of the rollout of NCTS-P5 in countries that use NCTS (EC, 2025a).

The empirical dynamics of the use of the common transit procedure indicate a transition of NCTS from a "point-based" instrument to a mass operational standard for a significant share of transit flows. By the end of 2025, almost 96.5 thousand movements initiated by the customs authorities of Ukraine and completed in other countries participating in the Convention on a Common Transit Procedure had been recorded. In Ukraine, more than 45.5 thousand movements initiated by other participating countries were completed. In total, nearly 142 thousand transit declarations were processed, representing an unprecedented result for Ukraine in the international application of NCTS. A structural shift toward the domestic use of NCTS was also recorded. The number of movements under internal transit increased by almost 2.5 times, from 10 thousand in 2024 to 24.5 thousand in 2025 (MFU, 2026). This trend may be interpreted as an indicator of growing business confidence in digital transit procedures and the diffusion of European procedural logic into domestic supply chains (see Table 1).

Table 1

Key indicators of NCTS application in Ukraine in 2025

Indicator name	Metric	Characteristic
Total number of transit declarations	Almost 142 thousand	Scaling NCTS as the «default» transit channel
Transfers initiated by Ukrainian customs authorities and completed in other countries	Almost 96.5 thousand	Intensity of cross-border transit originating in Ukraine
Transfers initiated in other countries and completed in Ukraine	Over 45.5 thousand	Growth in «inbound» transit and integration of import flows
Internal transit in NCTS	Over 24.5 thousand	Institutionalisation of the digital transit standard in domestic transport
General guarantees	87 (almost EUR 300 million)	Consolidation of the guarantee market and growth in guarantee capacity. Despite a decrease in the number of entities (from 109 in 2024), the total volume of guarantees increased by 51%, indicating a consolidation of the financial capacity of large operators.
Individual guarantees	22,701 (over EUR 1 billion)	Extension of guarantees coverage for transit operations
Exemption from guarantee	11 entities (over EUR 57 million)	Development of a partnership model and trust-based simplifications. In 2025, three new companies were added. This is the highest level of trust in business, allowing companies to free up working capital.

Source: (MFU, 2026)

The transition to NCTS-P6 in the EU is associated not only with the technical modernization of messages and data structures but also with addressing the task of integrating transit procedures with entry security and safety requirements through ICS2 (Import Control System 2).

The European Commission identifies two implementation options for NCTS-P6.

1. Opt-out option: Entry Summary Declaration (ENS) data are submitted directly to ICS2 separately from the transit declaration.

2. Opt-in option: the ENS message is incorporated into the transit declaration, while NCTS-P6 provides an interface with ICS2 to support the execution of business processes such as risk analysis, control recommendations, and decision-making (EC, n.d.-a).

Within the framework of preparations for NCTS-P6, Ukraine is inclined toward the implementation of the opt-in model, which is more complex from a technical perspective but procedurally more efficient

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for businesses because it avoids the duplication of ENS submissions and transit data. This approach is reflected in the official communications of the State Customs Service of Ukraine (DMSU, 2026c). Even in the presence of pan-European implementation schedules, practical risks arise due to the asynchronous transition of individual states to NCTS Phase 6 (NCTS-P6) and ICS2. A demonstrative example is the case of Hungary, which, starting from 18 February 2026, introduced the application of NCTS-P6 and ICS2. This resulted in the mandatory submission of ENS through ICS2 in addition to the T1 declaration for entry into the EU via Hungary. A transitional period has been established until 15 March 2026, after which ENS submissions are accepted exclusively through ICS2 (DMSU, 2026d).

For Ukraine, this means that the standardization of customs control procedures must take into account not only "national readiness" but also the cross-national compatibility of implementation timelines, since local "advances" or "delays" in individual transit corridors can quickly translate into transaction costs and risks of operational disruptions.

The NCTS case demonstrates that the standardization of customs control procedures in a digital environment constitutes a threefold task:

1. Procedural standardization – establishing uniform rules, simplifications, and the formalization of stages and statuses within NCTS.
2. Data and interoperability – harmonizing data sets and message flows between NCTS and ICS2 through opt-in or opt-out architectures.
3. Institutional trust and compliance ecosystem – implementing guarantee instruments, developing simplifications, and transitioning toward a partnership model between customs authorities and business.

Technological modernisation of the national customs service. In the current context, the digital transformation of customs should be understood not merely as the digitization of individual procedures, but as a shift toward a data-driven control model, where the key management resources are data quality, standardized procedures, and IT interoperability. Within this paradigm, customs control moves from a predominance of manual operations to automated decision-making workflows, while risk management becomes the central mechanism for balancing the facilitation of legitimate trade with the prevention of violations. Accordingly, the technological modernization of customs should be assessed based on the system's ability to ensure:

a) automated data validation;
b) algorithmic selection of control objects;
c) transparent logging of officials' actions;
d) electronic interaction with participants in the supply chain.

A notable development is the integration of artificial intelligence elements into automated risk analysis tools. In particular, the State Customs Service of Ukraine has reported the implementation of a new version of its automated risk analysis system that employs generative large language models (LLMs) to automate the verification of names and surnames in customs declarations. According to the stated logic, the AI identifies incorrect entries and focuses manual checks on the most questionable cases, thereby simultaneously increasing the throughput of control procedures and reducing the influence of human factors (DMSU, 2026e). In practical terms, this signifies a shift toward preventive data quality control. Reducing errors in primary data sets improves the accuracy of risk profiling and decreases the proportion of unjustified interventions in legitimate trade.

A parallel track of modernization involves the upgrading of technical means for customs control at the border. The State Customs Service publicly links the deployment of modern scanners and weighing systems at checkpoints to the need for faster vehicle inspections, more effective detection of potential violations, and, consequently, an enhanced fiscal impact through reduced opportunities for evasion. In a scientific and practical interpretation, this approach establishes a model of "hybrid control", combining physical inspection tools with analytical risk management instruments, where technical means serve as tools for implementing selective decisions rather than as a universal practice of blanket inspections.

Particular attention is required for the digital modernization of seaport checkpoints, which are characterized by high process complexity and a substantial volume of documentation. Currently, a pilot operation is underway for the functionality of the Electronic Log of the Seaport Checkpoint as part of the updated Automated Customs Clearance System. The expected impact is defined through the automation of customs clearance at seaport checkpoints and the simplification and acceleration of customs control for foreign-going vessels.

It is further specified that the implementation of the electronic log is intended to ensure: electronic receipt, processing, and storage of documents; electronic transmission of decisions to members of the port community; logging of inspectors' actions; and the automation of risk assessment during control procedures for vessels. In the context of standardization, this signifies the institutionalization of a "process benchmark", where procedures are embedded in IT workflow logic, and deviations become manageable and auditable, thereby enhancing integrity and reproducibility of practices.

Authorised Economic Operator (AEO). The institution of the AEO emerged as the core of the "Customs – Business" partnership model within the SAFE Framework of Standards of the World Customs Organization, which was adopted in 2005. The AEO programme was subsequently introduced in 2007 as the flagship mechanism of the "Customs–Business" partnership [WCO, n.d.]. In the SAFE Framework of Standards 2025 edition (SAFE FoS 2025), the emphasis shifts from "formal compliance" toward the management of internal risks, ethical standards, and the prevention of insider threats. This strengthens the understanding of the AEO as an institution of trust rather than merely a "set of benefits" (WCO, 2025).

In the national legal framework, the AEO is institutionalized through the provisions of the Customs Code of Ukraine, which establish a logic of prior trust and selective control based on reliability and compliance criteria. A critically important prerequisite for scaling the AEO institution has been process-oriented digitalization. In this regard, the State Customs Service has initiated the phased implementation of the updated Customs Decisions System CDS.UA, which operationalizes electronic workflows for the submission of applications and the adoption of administrative decisions in the field of authorizations and simplifications (DMSU, 2026f). Empirically, the AEO programme demonstrates steady growth. According to the progress report on the National Revenue Strategy for 2024, the number of enterprises holding AEO status reached 77, reflecting increased interest from the business community. At the same time, an expansion of the system of simplifications and regular communication between the customs authorities and business associations has been recorded (MFU, 2025). In 2025, the number of enterprises holding AEO status reached 110, and the evaluation of new applicants was completed during the year. This indicates a transition from isolated authorizations to a programmatic model of trust **(DMSU, 2026g)**. The granting of the 110th AEO status to a large trading operator demonstrates that the AEO regime is becoming relevant not only for traditional exporters and manufacturers but also for sectors characterized by a high frequency of import shipments and a significant volume of documentation.

Despite quantitative growth, the key issue remains the structure of AEO authorizations by type. According to the official report of the Ministry of Finance, prepared in the context of the work of the EU–Ukraine Sub-Committee on Customs Cooperation, the European Union specifically emphasized the need to increase the number of AEO authorizations of the "security and safety" type (AEO-S). A benchmark of 10 such operators has been confirmed, whereas as of 1 January 2025 their number stood at only three (MFU, 2025, p. 41).

This means that, in order to achieve practical readiness for negotiations on the mutual recognition of AEO, Ukraine should move from merely expanding the AEO perimeter toward the targeted stimulation of the security dimension. This includes standardized requirements for internal supply chain security covering personnel, access control, and counterparties; the integration of ethical and anti-corruption policies into the compliance package; and the development of bundled digital services for AEO-S within CDS.UA, including policy templates and typical risk profiles for accelerated targeting. Such measures can serve as an element of the standardization of customs control procedures.

Cross-border data exchange and multimodal logistics. The transition to paperless procedures in trade and at the border should be understood as a sequence of interrelated institutional and technological steps rather than as a one-time IT modernization. In practical terms, the concept of "going paperless" encompasses the following elements:

1) digitization of trade documents;
2) the digitalization of procedures;
3) the application of digital technologies to connect processes and manage risks;
4) the standardization of data elements;
5) the establishment of legal and organizational frameworks that legitimize electronic operations.

Empirical assessments by the OECD further emphasize that data availability and regulatory compatibility are becoming key constraints for the automation of border control. Improvements in the automation and coordination of border procedures, reflected in a 10% increase in Trade Facilitation

Indicators (TFIs), are associated with an increase in global merchandise exports of up to 18%. At the same time, improvements in the regulatory environment governing digital transactions are associated with an increase in global exports of up to 37% (OECD, 2025). Within this logic, cross-border data exchange and the digitalization of transport documents function not as a supplementary layer but as structural elements underpinning the standardization of customs control procedures. They reduce information gaps between jurisdictions by shifting control toward a regime of advance analytics and risk-based targeting. The SEED (Systematic Electronic Exchange of Data) system has evolved as an instrument for the systematic electronic exchange of customs data between neighboring administrations and has been operating for more than a decade in the regional CEFTA framework. Its core value lies in providing customs authorities of the destination country with pre-arrival access to relevant cargo and transport attributes, thereby reducing the need for duplicate data entry and improving the quality of risk analysis (Razumei et al., 2025). The updated SEED+ version conceptually expands SEED from a message exchange mechanism into an application software solution for managing the flow of vehicles at the border and for scaling the scope of shared data sets (CEFTA, n.d.). The key procedural effect of SEED+ lies in the transition from retrospective verification at the border crossing point to preventive coordination. Customs authorities in the country of entry receive relevant data before the arrival of the vehicle, which allows them to cross-check this information with declarative and reference data and to apply risk profiles prior to the actual border crossing. This approach reduces the time required for coordination and limits opportunities for data manipulation.

In this context, the practical use of this mechanism is particularly important for Ukraine, especially the application of SEED+ as an instrument of the "Solidarity Lanes. In 2023, with the support of EU4Digital, an eCustoms pilot project was launched on the Ukraine – Romania section (Porubne – Siret), focusing on the electronic exchange of data on the cross-border movement of freight vehicles and the reduction of duplicated procedures (EU Neighbours East, 2025a). In 2024, a trilateral eCustoms/SEED pilot project (Ukraine–Moldova–Romania) was implemented, covering several border crossing points. According to project reports, it was tested on a dataset exceeding 125 thousand movements of freight road transport, including both empty and loaded vehicles (EU Neighbours East, 2025b). From the perspective of the standardization of customs control, this case is particularly important because it demonstrates that the scalability of data exchange directly depends on the alignment of data attributes and procedures for accessing them. Special attention should also be given to the pilot project between Ukraine and Lithuania, which is positioned as a precedent for applying the SEED logic to big data–based analytics, particularly to strengthen the monitoring of sanctions compliance and post-clearance control (EU Neighbours East, 2025c). In the scientific and practical dimension, this format highlights that the contemporary standardization of customs control extends beyond the physical border crossing point and encompasses cross-border analytical frameworks such as post-clearance analytics and risk management. Within this context, the quality of data, their semantic consistency, and the legal basis for their processing become critical factors.

In parallel with customs data exchange frameworks, the digitalization of transport documentation is also taking place. The normative core for road transport is the Additional Protocol to the CMR Convention concerning the Electronic Consignment Note (e-CMR). It establishes the legal foundations for the use of an electronic document in place of a paper one and, when properly implemented, reduces transaction costs and enhances the traceability of logistical events (Additional Protocol, 2008).

In the EU, the legal basis for electronic freight data is provided by Regulation (EU) 2020/1056 (eFTI) and its accompanying implementation framework. Competent EU authorities are required to accept regulatory information in electronic form through certified platforms. The expected impact includes a reduction in administrative burden and annual savings of up to EUR 1 billion for the transport and logistics sector, assuming full implementation of the framework according to the established timeline (EC, n.d.-b).

From the perspective of border and customs control, it is important that e-CMR/eFTI convert transport data into a machine-readable and verifiable format, creating conditions for:

1) automatic reconciliation of transport and customs events;

2) elimination of duplicate information exchanges between the carrier, freight forwarder, customs authorities, and other regulatory bodies;

3) transition to risk-based "data-driven control" rather than control based on paper documents.

The global trend also extends to transit instruments. eTIR is evolving as a paperless operational framework within the TIR ecosystem and is positioned as a solution for the secure real-time exchange of data and the enhancement of risk management capabilities (eTIR, n.d.). At the level of international road transport administration, a transition to a fully digital licensing system is planned for 2026, aimed at increasing transparency, preventing fraud, and accelerating inspections.

Legal and technological synergy with the DSM. The integration of Ukraine into the DSM is increasingly defined not by declarative digitalization, but by the state's ability to replicate in national regulation the key elements of the EU digital acquis:

1) trust services and electronic identification (eIDAS/eIDAS 2.0);
2) personal data protection (GDPR);
3) cybersecurity of critical and essential entities (NIS2);
4) rules governing electronic communications markets and infrastructure (planning of 5G/gigabit networks, access to infrastructure, etc.).

In Ukraine, these elements are being detailed, in particular, through the adoption of strategic sectoral documents and action plans for 2025–2027.

A key step toward alignment with eIDAS has been the implementation in Ukraine of EU legislative approaches in the field of electronic identification and trust services. In particular, this has been achieved through the updating of the relevant national law, which establishes the legal foundations for interaction with the European model of trust services (VRU, 2022). In practical terms, this has created a foundation for the mutual legal recognition of qualified electronic signatures and seals in cross-border transactions, including banking services, contracts, invoices, and interactions with public registries. Special attention should be given to the "trust list regime": Ukraine's inclusion in mechanisms related to third countries in the field of trust services is interpreted as a step toward establishing a supranational verification framework, where the technical validation of signature certificates becomes a standard procedure for European information systems (EU4Digital, 2025). This is important not only for citizen-facing services but also for customs, logistics, and financial processes, where a recognized electronic signature effectively reduces compliance-related transaction costs. Latvia has already legislatively established the legal recognition of Ukrainian qualified electronic signatures, equating their legal effect to that of a handwritten signature within its territory (VARAM, n.d.). For Ukrainian citizens and businesses, this means the ability to sign documents with partners and access certain public services within the jurisdiction of an EU Member State without physical presence. It demonstrates the practical functionality of the digital trust model at the level of law enforcement and regulatory application.

In parallel with alignment to the current eIDAS, Ukraine is participating in the testing of the new eIDAS 2.0 framework, which focuses on the European Digital Identity Wallet (EUDI Wallet). Participation in large-scale pilot consortia, notably POTENTIAL and APTITUDE, has practical significance, as it allows national solutions to be synchronized with the requirements of the future European trust architecture and minimizes the risk of costly redevelopment once the EUDI Wallet is fully deployed across the EU (EU4Ukraine, 2024). An additional technological bridge for interoperability remains the development of secure registry interaction platforms. The update of the inter-agency data exchange ecosystem (Trembita 2.0) is, in project terms, linked to strengthening cybersecurity and ensuring compatibility with European approaches to data exchange.

The most visible outcome of Ukraine's integration into the DSM for citizens has been the decision to include Ukraine in the Roam Like at Home zone starting 1 January 2026. This extends the EU internal market principle to roaming services for Ukrainian numbers in EU countries and vice versa (EC, 2025b). From a political-economic perspective, this serves as a marker of the regulatory environment's readiness for alignment in the electronic communications sector and demonstrates Ukraine's ability to fulfill internal market obligations in specific segments even before formal EU membership. In practical terms, it reduces mobility costs for the workforce, supports business communications, and encourages further harmonization of regulatory procedures in the sector.

An important mechanism of convergence is Ukraine's participation in the Digital Europe Programme (DEP), the EU instrument for scaling digital capabilities in areas such as AI, cybersecurity, digital skills, and technology deployment. In practice, the integrative effect of DEP is manifested not only through grants but also through the creation of networked structures for technology transfer. In Ukraine, this has resulted in the establishment of a network of eight European Digital Innovation Hubs, as well as

measurable outcomes from Ukrainian organizations: 19 grant agreements, 75 participating organizations, and €14.4 million in mobilized funding (Office for Entrepreneurship, 2025). This means that alignment with the DSM occurs not only through legislation but also through joint projects, implementation standards, grant audits, and requirements for cybersecurity and data management.

Digital services such as registries, trust services, customs databases, and cloud solutions depend on reliable backbone infrastructure. In this context, the CEF Digital projects provide a notable example of cross-border connectivity. For instance, the East West Gate project, co-financed under CEF Digital, involved the deployment of a DWDM backbone between Ukraine and EU nodes, notably via Poland to Germany and the Czech Republic, with a focus on bandwidth capacity and resilience (Netia, n.d.). Such investments have a multiplier effect because they increase the resilience of digital services, reduce latency in access to European cloud platforms, and facilitate the redundancy of critical systems.

Thus, synergy with the DSM emerges as a combination of legal alignment (eIDAS/eIDAS 2.0, GDPR, NIS2, electronic communications rules), trust-based institutions (trust lists, mutual recognition of signatures), joint development programs (DEP/EDIH), and infrastructure connectivity (CEF Digital). In this perspective, digital integration ceases to be merely an IT project and becomes an instrument of competitiveness and institutional resilience, critically important for Ukraine's economic integration into the EU.

Conclusions. The article substantiates that the digitalization of customs administration serves as a key instrument for forming a "trust infrastructure" in the process of Ukraine's integration into the EU customs and digital space. It is demonstrated that the standardization of procedures and data within systems such as NCTS, ICS2, and SEED+ facilitates the transition to a risk-oriented model of customs control in which customs risk management is based on data analytics and preventive information exchange between customs administrations. The implementation of pre-arrival data exchange and automated risk analysis tools shifts the focus of control from physical inspections to analytical risk profiling, thereby improving the accuracy of targeting and reducing unnecessary interference with legitimate trade. An important element of this system is the institutional mechanisms of trust, in particular the AEO programme, which establishes a partnership model between customs and business and supports the selectivity of control. It is also shown that the integration of digital trust services and paperless transport documents creates preconditions for improving data quality, which is a critical factor for effective risk profiling. Overall, the digital rethinking of customs administration ensures a balance between trade facilitation and effective customs control through the development of intelligent systems for customs risk management.

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ЦИФРОВІЗАЦІЯ МИТНОЇ СПРАВИ ЯК УМОВА ІНТЕГРАЦІЇ В ЄВРОПЕЙСЬКИЙ ПРОСТІР

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Мета статті. *Мета полягає у теоретичному та практичному обґрунтуванні цифрової трансформації митного адміністрування як «інфраструктури довіри» у процесі секторальної конвергенції України з ЄС, а також у демонстрації того, яким чином стандартизація даних і процедур сприяє забезпеченню балансу між сприянням законній міжнародній торгівлі та здійсненням митного контролю.*

Методи дослідження. *У дослідженні використано інституційно-правовий аналіз нормативних актів ЄС та міжнародних стандартів у сфері цифровізації митних процедур в митних органах України. Застосовано метод порівняльного аналізу практик функціонування цифрових митних систем і механізмів управління митними ризиками в ЄС, контент-аналіз офіційних стратегічних і програмних документів, а також системний підхід для узагальнення ролі цифрових технологій, електронного обміну даними та програми АЕО у трансформації митного адміністрування в Україні.*

Результати. *Обґрунтовано, що цифрове переосмислення митного адміністрування формує «інфраструктуру довіри», яка забезпечує ефективну взаємодію держави та бізнесу в міжнародній торгівлі. Встановлено, що стандартизація даних, впровадження електронного обміну інформацією та використання інтегрованих митних ІТ-систем сприяють переходу до ризик-орієнтованої моделі митного контролю. Показано, що інструменти цифрового митного адміністрування, зокрема системи попереднього обміну даними та програма АЕО, підвищують точність профілювання ризиків і дозволяють зосередити контроль на операціях із підвищеним ступенем ризику. Доведено, що узгодження цифрових митних стандартів України з практиками ЄС сприяє підвищенню ефективності управління митними ризиками, зменшенню адміністративних бар'єрів і водночас забезпечує баланс між сприянням законній торгівлі та результативним митним контролем.*

Висновки. *У статті обґрунтовано, що цифровізація митного адміністрування відіграє ключову роль у формуванні «інфраструктури довіри», яка сприяє інтеграції України у митний та цифровий простір ЄС. Стандартизовані дані та процедури у таких системах, як NCTS, ICS2 та SEED+, дають змогу перейти до ризик-орієнтованої моделі митного контролю, що базується на аналізі даних та попередньому обміні інформацією. Використання інформації, отриманої до прибуття вантажу, та автоматизованого аналізу ризиків зміщує акцент з фізичних перевірок на аналітичне профілювання ризиків, підвищуючи точність цільового відбору та зменшуючи непотрібне втручання у законну торгівлю. Інституційні механізми довіри, зокрема програма АЕО, зміцнюють співпрацю між митницею та бізнесом. Загалом, цифрова трансформація покращує якість даних і дозволяє досягти потрібного балансу між спрощенням торгівлі та митним контролем завдяки ефективному управлінню митними ризиками.*

Ключові слова: електронний обмін даними, митний контроль, управління ризиками, авторизований економічний оператор, зовнішня торгівля, митна логістика, спрощення митних процедур, європейська інтеграція.

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