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PROSPECTS FOR THE USE OF MODERN IT APPLICATIONS IN THE COLLECTION OF CUSTOMS PAYMENTS ON GOODS IMPORTED BY INDIVIDUALS

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Abstract

This article examines the organizational, economic, and institutional aspects of digitalizing the collection of customs payments on goods imported by individuals for non-commercial purposes. It analyzes the integration of electronic declarations, advance electronic data submission, automated calculation, risk scoring, and digital payment instruments. Drawing on international standards, the study develops the components and evaluation criteria of an integrated, data-driven model.

Keywords: Individuals; imports; customs payments; digitalization; electronic declaration; risk scoring; artificial intelligence; electronic payment; customs administration.

Introduction

Against the backdrop of expanding international e-commerce, postal and courier shipments, and passenger flows, customs control over goods imported by individuals requires a transition from traditional paper-based procedures to data-driven management. Protecting fiscal interests must be combined with simplifying customs formalities for citizens. The provisions of the Customs Code of the Republic of Uzbekistan governing non-commercial goods imported by



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individuals provide a legal foundation for organizing these processes electronically [1].

The economic significance of digital tools extends beyond speeding up procedures. Such tools can reduce information asymmetry when verifying declared customs values, support the monitoring of complete payment collection, identify transactions with an elevated risk of violations, and improve the allocation of control resources. Consequently, customs digitalization should be viewed not as a collection of separate applications, but as an uninterrupted chain of information exchange and payments.

The first functional component of modern IT solutions is the electronic receipt of data before goods arrive at the customs border. When an individual or authorized postal or courier operator submits information in advance regarding the description, quantity, value, and delivery characteristics of goods, customs authorities gain additional time for preliminary verification and risk screening. Article 7.1 of the WTO Trade Facilitation Agreement provides for pre-arrival processing, while Article 7.2 addresses electronic payment of duties, taxes, fees, and charges [3]. These provisions offer methodological guidance for developing advance assessment and remote payment services within the national system.

The second component is a mechanism for automatically calculating customs payments. The algorithm should consistently apply the customs value of goods, the import channel, legally established value and quantity allowances, and the relevant payment rates. Its principal advantage is the standardization of calculations and a reduction in the likelihood of inconsistent treatment of comparable cases. At the same time, the system-generated preliminary calculation must be legally distinguished from the final customs decision, and



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citizens should be given a transparent explanation of the calculation formula and the legal rules applied.

The third component is risk scoring based on artificial intelligence and statistical analysis. The relative risk of a transaction may be assessed using declaration data, product categories, deviations from typical value ranges, shipment frequency, and other lawful criteria. The World Customs Organization (WCO) Framework of Standards on Cross-Border E-Commerce places particular emphasis on advance electronic data, risk management, and data analytics [4]. However, a risk score does not itself establish that a violation has occurred: any final legal determination must rest on verified evidence and applicable procedural safeguards.

The fourth component is the integration of electronic payments with accounting and record-keeping systems. Secure information exchange with banks and payment service providers can reduce delays between issuing a payment instruction, confirming receipt of funds, and completing customs clearance. Procedures for refunds, correction of erroneous payments, alternative clearance during system outages, and personal data security must be specifically regulated. The WCO Immediate Release Guidelines for low-value consignments emphasize advance information and the classification of goods into appropriate categories [5].



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Table 1. Mechanisms through which IT solutions affect customs payment collection

Digital solution	Economic and organizational effect	Evaluation indicator
Advance declaration electronic	Accelerates the collection and verification of preliminary data	Share of data submitted in advance (%)
Automated calculator payment	Reduces calculation errors and repetitive procedures	Share of payment assessments requiring recalculation (%)
Risk scoring	Directs control resources toward higher-risk cases	Effectiveness of inspections (%)
Electronic payment integration	Speeds up payment confirmation and recording	Average payment confirmation time
Unified data profile	Enables lawful analysis of related transactions	Number of instances of repeated data entry

Source: Compiled by the author on the basis of WTO and WCO standards [3–5].

The proposed digital workflow follows this logical sequence: advance electronic data submission → data verification → automated preliminary assessment → risk scoring → selective control where required → determination of the final payment obligation → electronic payment → accounting and recording. Each stage is connected to the next; inaccurate or incomplete information at one stage may affect the quality of subsequent decisions. The effectiveness of digitalization should therefore be assessed by overall process outcomes rather than merely by the number of newly introduced applications.

Potential evaluation indicators include average customs clearance time, the proportion of payments made voluntarily and on time, the number of additional assessments, the number of complaints submitted by citizens, and the



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effectiveness of risk-selected inspections. Such an approach would make it possible to examine the economic effectiveness of digital initiatives empirically once relevant data become available.

The findings suggest that the prospects for using IT applications to collect customs payments on goods imported by individuals lie primarily in integrating data intake, risk assessment, payment calculation, and recording within a unified technological environment, rather than merely expanding the number of individual electronic services.

From this perspective, a unified electronic customs profile should be introduced gradually to enable individuals to view their import transactions, the rules applied, and the payments assessed, while complying with personal data protection requirements.

An automated payment calculator and an explainable risk-scoring module should be integrated with this profile, with their outputs subject to human oversight and appropriate mechanisms for appeal.

The practical effects of these two interconnected solutions should first be tested through a limited pilot project and subsequently assessed using clearance time, error rates, payment compliance, and inspection effectiveness. This would create an evidence-informed organizational basis for improving the transparency and fiscal efficiency of customs administration.

References

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