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REENGINEERING PAYMENT PROCESSES IN THE PRIVATE HEALTHCARE SECTOR IN THE CONTEXT OF DIGITAL ASSETS

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Abstract: *Wartime conditions, the rapid digitalization of the economy, and the high level of crypto-adoption among the Ukrainian population create a unique experimental space for implementing digital assets in healthcare financing. Virtual assets in Ukraine are legally defined as assets rather than legal tender, opening a so-called "legal window" for scientific analysis of the potential use of cryptocurrencies, stablecoins, and the NBU's future digital currency - the e-hryvnia - within the private healthcare sector. The study demonstrates that traditional payment models in medical institutions fail to meet the expectations of digitally-oriented patients and the capabilities of modern payment ecosystems. Consequently, a systemic reengineering of processes is required, rather than the mere technical integration of crypto-gateways. The author proposes a conceptual model for payment process reengineering based on a combination of technological openness (cryptocurrencies, stablecoins, Web3 tools), strict compliance with AML/CFT requirements, and the gradual implementation of the e-hryvnia as a programmable digital equivalent of the national currency. A key feature of this approach is the conceptualization of digital assets as an integral element of the private healthcare financial mechanism, rather than an administrative novelty. The paper concludes that reengineering payment processes in Ukrainian medical institutions can drive the digital economy but requires a balance between innovation, legal security, and social responsibility.*

Keywords: private healthcare sector; payment process reengineering; digital assets; cryptocurrencies; stablecoins; e-hryvnia; AML/CFT; Ukraine

Wartime conditions, the rapid digitalization of the economy, and the high level of crypto-adoption among the Ukrainian population create a unique experimental testbed for implementing digital assets in healthcare financing. In this context, the private healthcare sector finds itself at the intersection of two realities: on the one hand, there is mass demand for digital and international payments; on the other, the legal status of cryptocurrencies and restrictions on their use as a means of payment are still being formed.

Virtual assets in Ukraine are legally defined as assets rather than legal tender. However, a simultaneous global trend toward the legalization and taxation of the crypto-market is emerging, opening space for the scientific analysis of this "regulatory window" within the private medical business. Under these conditions, the private sector cannot limit itself to passively awaiting the conclusion of regulatory processes; it is compelled to formulate its own strategies for reengineering financial flows. These strategies must account not only for the capabilities of digital assets but also for risks related to volatility, AML/CFT compliance, and public trust.

The scientific novelty of this study lies in approaching the reengineering of payment processes in the private healthcare sector not as a standalone technical modernization, but as a holistic restructuring of the financial mechanism. This restructuring aims to create a hybrid payment system: partially traditional (cash, cashless, bank and electronic payment systems) and partially digital asset-based (cryptocurrencies, stablecoins, and the future e-hryvnia).

Theoretical Framework: Process Reengineering in the Healthcare Sphere

Business Process Reengineering (BPR) is viewed as a radical restructuring rather than incremental improvement. This aligns with the specific nature of medical services, where outcomes directly impact patient viability and the investment attractiveness of clinics. In the medical sphere, reengineering payment processes requires consideration not only of economic indicators (costs, transaction time, service quality) but also of the ethical, legal, and psychological aspects of the "patient-doctor-payment system" interaction.

To model this reengineering, elements of a behavioral economic approach are utilized - specifically, Thaler and Sunstein's Nudge theory. This approach demonstrates how digital payment formats (cryptocurrencies, stablecoins, programmable e-hryvnia payments) can alter patient preferences and medical staff behavioral patterns. For instance, interface design, the method of displaying costs, and automated prompts regarding alternative payment scenarios become instruments for shaping behavior, rather than mere technical details of the system. In

this context, the reengineering of payment processes in Ukrainian medical institutions acts as a transitional link from the traditional "cash-and-cashless" model to a hybrid system that integrates digital assets while being shielded from critical risks.

The Status of Cryptocurrencies, Stablecoins, and the E-hryvnia in Ukraine

Ukraine maintains a high level of crypto-adoption: according to international rankings, the country is in the top 10 for digital asset usage activity, indicating a high level of mass digital literacy and openness to new payment formats. The current Law of Ukraine "On Virtual Assets" defines cryptocurrencies as assets rather than official money, yet it creates a legal foundation for further regulation, taxation, and the establishment of a financial monitoring regime [1].

The latest draft law on virtual assets and their taxation (effective from 2025) provides for the licensing of cryptocurrency platforms and Virtual Asset Service Providers (VASPs), as well as the establishment of a clear financial monitoring regime. This has a direct impact on the feasibility of using crypto-payment gateways in medical institutions. In this context, a portion of the digitally active audience already uses cryptocurrencies in daily transactions; however, the rights and obligations of clinics regarding their acceptance remain an open legal question [2].

Stablecoins (USDC and others) are already utilized in Ukraine for international transfers, charitable programs, and by a segment of export-oriented businesses. This confirms their potential role as a tool for mitigating currency risk when paying for medical services. Stablecoins ensure relative price stability, partially eliminating volatility risks, but they fall under the same AML/CFT requirements as other virtual assets.

The e-hryvnia, as a CBDC (Central Bank Digital Currency), is viewed by the National Bank of Ukraine as a digital equivalent of the hryvnia intended to complement cash and non-cash funds, particularly through programmability (smart functions, spending restrictions on specific categories of goods/services). The NBU plans a pilot launch of the e-hryvnia, but mass implementation in the private healthcare sector is not yet scheduled, creating scope for scientific forecasting and the modeling of future payment scenarios [3].

Challenges of Implementing Digital Assets in Private Clinics

The implementation of digital assets in medical institutions is impossible without understanding the challenges they generate. Financial risks, particularly cryptocurrency volatility, may lead to losses for private clinics if payments are not immediately converted into hryvnia or if an intermediary stablecoin is not used. At the same time, stablecoins, despite their stability, do not eliminate anti-money laundering requirements; they merely shift the source of the risk.

Legal and regulatory risks lie in the absence of clear normative acts regarding the use of cryptocurrencies in the healthcare sector, creating a regulatory vacuum. Clinics are forced to go beyond passive compliance with the law by formulating their own internal regulations for counterparty identification, transaction monitoring, and interaction with fintech provider partners to avoid sanctions and reputational damage.

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The technical and organizational complexity of reengineering manifests in the need to implement crypto-payment gateways, integrate with billing systems, ensure transaction security (cold wallets, multi-factor authentication, address monitoring), and comply with personal data protection requirements. This requires private institutions to invest in IT infrastructure, partner with fintech companies, and conduct periodic audits to ensure compliance with emerging regulatory standards.

A distinct challenge is the trust, digital literacy, and behavioral resistance of both medical staff and patients. A segment of patients and healthcare professionals possesses limited awareness of cryptocurrencies, which can induce distrust, fear of transactional errors, or the outright rejection of new payment formats. In this context, elements of the behavioral-economic approach - specifically the nudge-design of payment interfaces, straightforward explanations, visual cues, and informational materials - become not merely an aspect of UX design, but a fundamental component of reengineering the patient communication process.

The reengineering of payment processes in the private healthcare sector in the context of digital assets is not merely the technical integration of crypto-gateways, but a systemic restructuring of the financial mechanism.

This restructuring must account for cryptocurrency volatility, AML/CFT requirements, the restricted legal status of virtual assets, and the specific operational nature of the medical sector.

The outlined elements demonstrate that private medical institutions in Ukraine are currently on the threshold between traditional payment models and hybrid scenarios that utilize cryptocurrencies, stablecoins, and the potential e-hryvnia. A significant scientific and practical opportunity lies in utilizing this transitional period to develop reengineering models that harmonize the innovativeness of digital assets with legal security, ethical responsibility, and strict patient data protection requirements.

Ultimately, the reengineering of payment processes in Ukraine's private healthcare sector can serve not only as an instrument for modernizing medical service financing but also as a pilot testbed for the broader development of the digital economy, provided it is grounded in a precise balance between innovation, regulatory compliance, and social responsibility.

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