

## PROSPECTS FOR USING BLOCKCHAIN IN THE SYSTEM OF INTERNATIONAL SUPPLY CHAINS AND CROSS-BORDER PAYMENTS

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### Abstract

This article considers the transformative potential of blockchain technology and digital currencies in revolutionizing national and international payment systems. The study employs a comprehensive analysis of existing literature, real-life cases, and current trends in blockchain and digital currency adoption. It assesses the impact of blockchain on international trade and financial transactions, focusing on its potential to reduce costs, enhance security, and improve transparency. The research reveals that blockchain offers promising solutions for cross-border payments by eliminating intermediaries, reducing transaction costs, and increasing the efficiency of supply chains. Central bank digital currencies are gaining traction as central banks strive to modernize payment systems and mitigate risks associated with legacy clearing systems. The study also highlights the emergence of regional payment systems and country-specific associations driven by blockchain adoption, enabling autonomous payment transactions independent of traditional regulatory mechanisms. The article emphasizes the importance of exploring alternative channels for international transactions and embracing these technologies to navigate the evolving landscape of cross-border payments. Ultimately, the potential of blockchain to accelerate transactions, reduce costs, and enhance security makes it a transformative force in reshaping the future of international and national payment systems.

**Keywords:** blockchain, transnational payment systems, economic security, sanctions pressure, international supply chains, digital transformation.

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## INTRODUCTION

Today the main idea of transforming international trade carefully considered by scholars (Allen et al., 2019; Ganne, 2018; Kochergin, 2021; Safiullin et al., 2019) and international organizations (World Economic Forum, Organization for Economic Cooperation and Development, Bank for International Settlements, etc.) (Auer et al., 2020; OECD, 2019; World Economic Forum, 2019) is a transition to decentralized trading platforms. It aims to replace the established development of e-commerce trading platforms including numerous intermediaries (financial, insurance, logistics, etc.) with a decentralized format that directly connects buyers and sellers (exporters and importers in the context of this research object) in accordance with the principles of creating and developing a peer-to-peer network based on blockchain.

From the perspective of economic theory, the transformation of the system for ensuring international payments is consistent with the philosophy of libertarianism (Clarke, 2003). The creation of unique ecosystems built on the principles of voluntary association allows implementing procedures and algorithms for the decentralization of economic processes in international trade, which contributes to maximizing economic freedom and autonomy.

In comparison with the traditional standards of international economic activity, the key advantage of blockchain platforms acting as alternative channels for ensuring transactions at the national and supranational levels is a P2P partnership and payment exchange between parties without intermediaries. This opens new prospects not only in terms of savings on transaction costs but also allows accelerating and optimizing the formation of supply chains due to such emerging trends as digitalization, automation, acceleration in the trade cycle, increased competition, reduced dependence on global intermediaries in the financial sector (SWIFT, etc.), reduction of transaction costs, etc. (Allen et al., 2019; Alonso et al., 2021; Engert & Fung, 2017; Sidorenko, 2021).

## MAIN PART

A blockchain platform eliminates the need for centralized control and coordination of trade transactions. Consequently, the role of intermediation (including commissions and transaction fees) is reduced to a minimum, unless the ecosystem is built on the principle of a permissioned blockchain<sup>1</sup>. The decentralized forms of economic relations based on blockchain delegate intermediation mechanisms to programmed algorithms.

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<sup>1</sup> Permissioned blockchain is a blockchain platform that allows its participants to have limited access to the functionality of making changes to the blockchain.

Despite all the positive effects, there are also certain limitations and risks of using blockchain in the system of international supply chains. These include:

- Different jurisdictions and legal frameworks in different countries governing the digital space and the system of international economic relations. These restrictions are clearly manifested in the use of smart contracts which forcibly execute operations and transactions in accordance with the programmed protocol and algorithm of actions. In most countries, the lack of jurisdiction in the regulation of smart contracts is also a significant limitation to the active spread of blockchain;

- Various legal systems regulating the protection of consumer rights, parameters for the use of acceptable confidentiality, and systems for ensuring cross-border payments. The last factor is relevant for countries that have restrictions on access to international payment systems (for example, disconnection from SWIFT or sanctions against third countries prohibiting them from using international transaction systems in relation to a state subject to sanctions, etc.);

- The differentiated development of the digital space at the country level, which can also limit the access of individual states to the global blockchain ecosystem. This factor stipulates the need to create a unified digital infrastructure for blockchain-based collaboration, etc.

The disadvantages that limit the active processes of integrating blockchain into the system of economic relations, including international transactions, are associated with the very idea of decentralized regulation. For example, this form of business process predetermines the risks of losing control and ensures the security of ongoing operations in the event of disputes between the parties to the transaction (Auer et al., 2020; Okazaki, 2018; Zhang & Huang, 2021). The absence of a regulatory body hinders the resolution of conflicts. On the contrary, regulated trading platforms can provide support to transaction participants, ensure an adequate level of security at the level of financial institutions, and monitor and resolve disputes.

The factors limiting blockchain's ability to process cross-border and national payments include the fact that established regulatory institutions (in the field of payment systems, logistics, international transport services, etc.) show resistance to their exclusion from the system of international transactions. In addition, the participants in international trade are not interested in innovations since the ecosystem that has been forming over decades has taken root and is not ready for market participants to leave it despite obvious positive effects.

Updating the role of blockchain and payment systems built on its basis, including at the cross-border level, we should mention that despite the contradictory approaches and positions of experts on the feasibility and possibility of their use in economic activities, some states and business entities are moving towards the blockchainization of international supply chains (Table 1).

**Table 1** – Practice of using blockchain in the system of organizing international supply chains (based on data from (European Parliament, Directorate-General for Parliamentary Research Services et al., 2020))

Partner organizations	Functionality and purpose of the system	Launch year
Banks of Canada, JP Morgan Singapore (American bank, multinational financial holding company)	Implementation of financial cross-border transactions using digital currencies to speed up transaction procedures, reduce their cost, and increase their security within the use of blockchain	2019
KlickEx in collaboration with Stellar.org and IBM’s blockchain solution KlickEx is a cash payment system of the Central Bank of Polynesia using the interbank retail system “Smart market”	Using blockchain platforms for money transfers	2017
Circle is a P2P payments technology company that currently operates the USDC stablecoin, a cryptocurrency whose value is backed by USD assets	Instant cross-border P2P transactions without commission based on the Ethereum blockchain	2017
ReiseBank (Germany) and ABT (Canada)	Banks use the Ripple blockchain to organize and conduct international payments The blockchain platform allows financial institutions to process cross-border transactions instantly and without any fees	2016

The blockchain platforms that have been created and are already operating in the world organize business processes in the field of supply chains between various economic agents (Table 2).

**Table 2** – Practice of using blockchain in the system of organizing business processes (based on data from (European Parliament, Directorate-General for Parliamentary Research Services et al., 2020))

Industry/application	Main consumers	Developer	Description
Commercial sphere	Exporters, importers	OpenBazaar	Digital decentralized platform for P2P transactions Goods are exchanged directly between the seller and the buyer; the platform fulfills only a communication function. Transactions are carried out in cryptocurrency
	Exporters, importers	Particl	Particl is a P2P marketplace built as a decentralized application (DApp) on the Bitcoin blockchain. The platform is the first DApp (application built on a decentralized network combining a smart contract and a client-side user interface) built on Bitcoin with confidential transactions
Financial sphere	Financial institutions servicing transactions between exporters and importers	Voltron blockchain consortium	Digital letters of credit on the blockchain, ensuring that the use of a financial instrument is fast, transparent, and reliable (secure)
	Exporters, importers (closed ecosystem)	we.trade	UniCredit Italy and KBC Bank Belgium use the we.trade blockchain platform to facilitate trade between GruppoASA and its supplier Steelforce
	Financial organizations	Financial organizations of Germany (ReiseBank) and Canada (ABT)	Blockchain as a tool for implementing cross-border payments
Logistics	Transport companies, exporters, importers, ports,	Maersk, IBM	Formation of a unified ecosystem aimed at digitizing the supply

	customs authorities		chain and entering data into the blockchain
	Insurance companies	Maersk, E&Y, Guardtime, Microsoft	Formation of a digital ecosystem of participants in an insurance transaction, allowing the parties to receive unified, timely, and up-to-date information about risks upon the chronology of events entered the blockchain
Customs clearance	Customs authorities, exporters, importers	Korea Customs Service, SAMSUNG SDS Co., and the KCNET consortium	The pilot project of the Korea Customs Service to create a platform for recording, processing, and exchanging information in the blockchain
	Customs authorities, tax service, exporters, importers	International Chamber of Commerce	Pilot project to create a digital platform that allows using blockchain in the formation of customs and tax databases
Public administration	Regulatory authorities of government, exporters, importers	Singapore International Chamber of Commerce	A blockchain platform that aggregates electronic certificates (eCOs) of the origin of goods into a single database to prevent unauthorized changes and fraudulent activities with uncertified goods/services
		Inter-American Development Bank	Cadena crypto platform for managing AEOS (access and security control systems that provide system management and the required level of security, despite the availability of a network or server due to decentralized data storage)

Using blockchain for organizing transnational payments and forming international supply chains, it is important to highlight the main functional features of organizing international financial transactions. Traditional banking instruments that support cross-border

payments presuppose a wide chain of participants ensuring the implementation of transactions. For example, these can include:

- International payment systems (SWIFT is a unified standard for financial transactions and a general data processing system. It embraces over 200 countries and more than 11,000 financial organizations and corporations. The system is controlled by an international organization located in Belgium);
- Clearing organizations;
- Regulatory tools for checking transaction compliance with KYC (Know Your Customer) requirements;
- Other possible procedures that predetermine the process of cross-border transactions.

All these intermediaries of financial control and financial settlement are in the Western jurisdiction and the member states join the system based on existing agreements. Although SWIFT positions itself as a non-political, independent organization, its actual location in Europe predetermines the need to comply with European legislation.

The increased international sanctions pressure on the national economy of the Russian Federation in 2022 limited access of the Russian financial system to international payment systems. For example, the largest Russian banks (Sberbank, VTB, Otkritie Bank, VEB.RF, Credit Bank of Moscow, Rosselkhozbank, etc.) and corporations were disconnected from SWIFT on June 3, 2022, which complicated international financial transactions from abroad and to Russia. What makes the problem more acute is that, according to data for the pre-sanction year of 2021, about 300 Russian financial organizations used SWIFT. Subsequently, the Russian Federation ranked second after the United States. It is not difficult to assess the consequences of disconnecting the Russian economy from this data processing service.

The disconnection of financial institutions from SWIFT implies that their potential to implement payment transactions and foreign exchange transactions is significantly limited, which is reflected in trade turnover. In these circumstances, alternatives may be as follows:

1. *Cash payments for goods and services moving across the border.*
2. *Creation of a national, sovereign payment system of the Russian Federation (MIR).*

In 2022, the payment system was integrated into the financial systems of 11 countries and is currently serviced in Belarus, Vietnam, Kyrgyzstan, Armenia, Kazakhstan, Cuba, Tajikistan, Abkhazia, South Ossetia, Transnistria, the United Arab Emirates, Turkey, the Republic of Korea, and Cyprus. MIR cards are accepted by Internet services in China and Israel. As of 2022, 15 countries expressed their readiness to work with the system, including Venezuela, Iran, Mongolia, etc.

In the context of sanctions pressure (primarily from the USA (the Office of Foreign Assets Control of the US Department of the Treasury (OFAC))), some banks declared that it was inadmissible to work with the MIR payment system and began to suspend servicing Russian cards in 2022. These countries include Turkey, Armenia, Kazakhstan, Uzbekistan, Vietnam, Tajikistan, and Kyrgyzstan. To minimize the damage from possible sanctions if the MIR payment system remains functioning in their financial system, some countries began to work out alternative solutions for using MIR cards in their national payment systems.

Thus, in the context of systemic transformations, the sovereign payment system MIR has become more focused on the domestic market and servicing transactions within the Russian economy. Its use in other countries is mostly unstable because of sanctions. The potential of this mechanism for carrying out cross-border transactions is localized.

3. *“Financial transfer system” (SPFS)*, acting as an analog of SWIFT (created in March 2022). The system ensures financial transactions both within the Russian Federation and abroad, provided that a foreign bank is connected to it. Currently, financial organizations from Belarus, Armenia, Kyrgyzstan, Kazakhstan, Tajikistan, and Cuba are connected to the SPFS system.

In accordance with the decision of the Bank of Russia of March 17, 2023, from October 1, 2023, “when transmitting electronic information on any transfer of funds in the territory of the Russian Federation, credit institutions are required to interact with each other through the financial message transmission system (SPFS) of the Bank of Russia or other Russian systems that transmit and store information on financial messages only in the territory of the Russian Federation. This requirement does not apply to cross-border transfers carried out by credit institutions” (Egorshcheva, 2023).

#### 4. *Fintech in the form of blockchain ecosystems.*

This mechanism for implementing cross-border transactions should be characterized within two main areas:

– In the context of sanctions, as a tool for localizing the risks of disconnecting/restricting the Russian financial system from international payment systems and imposed restrictions on the use of national services in other countries (an alternative payment channel for cross-border transactions);

– From the position of emerging externalities for the national economy in normal conditions. This type of research involves the need to conduct analysis by assessing the possibilities for developing a cross-border payment system from the viewpoint of savings and optimization of processes.



We agree with the opinion (Clarke, 2003; Engert & Fung, 2017; Kochergin, 2021; Tapscott & Tapscott, 2017; Zhang & Huang, 2021) that blockchain is an effective tool for eliminating the shortcomings that have developed in the field of interbank payments and global trade processes. It can be argued that blockchain is an alternative mechanism to traditional banking methods for making cross-border and national transactions. Blockchain forms the basis for a cheap and secure alternative to the formation of international payment systems, optimizing the cross-border process while maintaining the highest level of security for international financial transfers through the implementation of a secure distributed ledger that limits unauthorized access to financial transactions.

Blockchain transactions are based on digital currencies. However, blockchain ecosystems can only be used to record the transactional exchange of fiat currency. The prospects for their use are confirmed by the fact that this type of payment system has become widespread in recent years (Table 1). This is confirmed by a survey by the Bank for International Settlements, which showed that most central banks are carrying out their own research and are at various stages of assessing the prospects for introducing digital securities (Boar et al., 2020). 86% of central banks are studying the possibility of issuing digital securities, 60% are experimenting with technologies, and 14% are at the stage of applied development or piloting (Boar & Wehrli, 2021). An active role is played by the European Central Bank, the Bank of Sweden, the Bank of Canada, the Bank of Russia, the Bank of England, the Reserve Bank of Australia, and the People's Bank of China which consider central bank digital currencies (CBDCs) as “a new form of fiat money issued digitally by the central bank and acting as a legal tender” (Mancini-Griffoli et al., 2018, p. 4).

The main motives for using blockchain in the payment system are as follows: increasing competition in the payment market and reducing transaction and emission costs (Engert & Fung, 2017); countering the intensified development of private cryptocurrencies (Alonso et al., 2021) and global stablecoins with a potentially large consumer coverage and impossible control by regulators (Ozili, 2023); combating the shadow economy and economic crimes (Cunha et al., 2021); increasing the accessibility of financial services as a result of promoting digital financial innovations and creating an inclusive digital payment system (Kshetri, 2021); maintaining financial stability and improving monetary policy instruments (Kochergin, 2021); increasing the attractiveness of national currencies and weakening the monopoly of the dollar in cross-border payments (Tong & Jiayou, 2021); countering sanctions in the field of localizing access of the country's financial organizations to international clearing systems. Additional incentives for the implementation of digital banking systems are associated with the

development of online transactions and contactless payments under the epidemiological restrictions caused by the COVID-19 pandemic (Civelek et al., 2021). The likely risks associated with digital fiat money (in addition to the obvious threats in the field of technological solutions and cybersecurity) are as follows: increased competition between central and commercial banks for deposits since CBDCs will allow clients to directly accumulate funds in the most reliable financial institutions, i.e., the central bank (Fernández-Villaverde et al., 2021); intensifying competition between countries for the establishment of international standards for the emission of digital securities and the compatibility of payment technologies based on them since control over industry standards will ensure a monopoly in the international CBDC markets (Tong & Jiayou, 2021); achieving a socially agreed balance of control (tax, financing of illegal business and money laundering, anti-terrorism, etc.) and confidentiality (no anonymity of CBDCs in comparison with cash) (Davoodalhosseini & Mohammad, 2018; Goodell et al., 2021).

In concentrated form, the key externalities of using blockchain in cross-border transactions and international supply chains include:

*1. Reduction of the cost of cross-border payments.*

The main advantage of cross-border payments implemented on blockchain platforms is the reduction of commissions due to the elimination of several intermediaries from the supply chain, for example, traditional clearing and payment systems (the current banking system uses a rather complex system for cross-border payments, in which a wide range of counterparties is involved). The other benefits of the system include a reduction in the time required for reconciling payment information, which speeds up the process of goods exchange and increases the economic efficiency of participants in foreign economic activity.

*2. Improvement of letter-of-credit transactions.*

The existing system for implementing trade operations based on the use of a letter of credit predetermines a large amount of data exchange on paper. These processes can take a very long time. The transition of this transaction scheme to the digital blockchain format will speed up the process of data exchange, which will allow savings on transactions.

Using a blockchain with a letter of credit can significantly speed up the process of transferring documents as part of trade operations. This process is formed within the framework of transparent and safe standards. A blockchain solution for letters of credit allows authenticating the source of data and documents, increasing the reliability of supply chain finance.

The digitalization of this process will provide the opportunity to reduce fraud risks, avoid documentation errors, and reduce compliance and labor costs. The advantage of blockchain is that no banks will be able to interfere with the digital infrastructure that registers and stores a letter of credit.

Blockchain can also provide trade finance as part of the international supply chain, for example, through automated inventory verification and shipment confirmations.

Thus, the main goal is to digitize the issue of a letter of credit by exchanging documents through a permissioned blockchain with international trading partners and banks as key participants.

### *3. The localization of financing risks within open accounts.*

The highly competitive environment in world markets predetermines the dominance of the buyer model. To increase their competitiveness, sellers formulate offers with open accounts. This model involves the seller supplying goods/services without advance payment, and the buyer undertakes to make payment upon receipt of goods or services. Indeed, this format of business relations carries significant risks for the supplier, but the latter often has to take this step as part of competitive pressure. The greatest risks are achieved if the buyer (importer) is not known to the exporter or if information about them is extremely limited.

The introduction of blockchain and related mechanisms (smart contracts) into the cross-border payment system will significantly mitigate such risks together with the digitalization of document flow, which, as in the previous case, will reduce the costs of participants in foreign trade activities. In the context of open account trade processes, the main goal of blockchain is to ensure fast and transparent transactions that eliminate the risks of non-payments in accordance with pre-programmed algorithms in supply chain financing. The use of blockchain platforms and smart contracts implemented based on them will guarantee payment in the conditions defined by the parties and programmed in the digital contract.

*4. Reduction of the time spent on transactions* (Kochergin, 2021). Transfers in blockchain ecosystems are almost instant, in contrast to traditional schemes for organizing international payments that can take up to several days.

*5. Growth of business activity due to the involvement of new regions and countries in the economy by expanding access to national payment systems* (Mancini-Griffoli et al., 2018).

### *6. Ensuring an increased level of security* (Ozili, 2023).

The decentralized data storage system does not compromise the integral transaction history. Since payments are a critical aspect of society, and fraud and data misuse must be

prevented (for example, for illicit and criminal trade), the use of permissioned blockchains combined with proper user identification/management provides a solution to this problem.

7. *The emergence of new opportunities for organizing business processes* (Alonso et al., 2021; Engert & Fung, 2017).

The use of smart contracts based on blockchain helps automate international transactions in accordance with the necessary algorithms, considering the interests of all participants in the supply chain.

Relying on the provisions presented above, the digitalization of financial transactions using blockchain can lead to the acceleration of cross-border financial transfers, while increasing the security and transparency of such transactions. The use of smart contracts that automate transaction procedures helps exporters avoid the risk of non-payment since such a transaction is formed and verified by all the parties to the transaction. For financial organizations, the blockchain format is also convenient and expedient for securing and maintaining transactions as it eliminates or localizes problems connected with the coordination of supply chain participants, reduces the risks of opportunistic behavior patterns among participants (fraud), and minimizes transaction costs through quitting several expensive procedures and paperwork.

Despite the windows of opportunity, the lack of a unified jurisdiction for different countries in the field of the digital ecosystem and blockchain, as well as no common technical infrastructure, impose significant limitations on the large-scale deployment of such technologies.

Regardless of the current restrictions, there are blockchain platforms that support the functionality of open account transactions (Table 3).

**Table 3** – Current practice of using blockchain platforms that implement the functionality of open account transactions (based on data from (European Parliament, Directorate-General for Parliamentary Research Services et al., 2020))

Partner organizations	Functionality and purpose of the system	Launch year
Eximchain implements a blockchain-based platform for trading operations in China	The Eximchain software company specializing in supply chain applications. Blockchain services help businesses connect, transact, and share information more efficiently and securely	2018
UniCredit Italy and KBC Bank Belgium use the we.trade blockchain platform to facilitate trade between Gruppo	Blockchain ecosystem designed to simplify the processes of financing cross-border payments for small- and medium-sized businesses	2018

ASA and its supplier Steelforce		
Sichuan Heija Co. (China) uses blockchain for the procurement of pharmaceutical products	Facilitating commerce for pharmaceutical SMEs, hospitals, and banks to promote transparency, speed up transactions, and eliminate inefficiencies in the supply chain	2017

Based on the express analysis, which reveals the features and key characteristics of real and alternative payment systems that can be used in both national and cross-border financial transactions, Table 4 presents the main parameters that demonstrate the potential for using each of them in modern conditions associated with systemic transformations in the economy under sanction pressure.

Table 4 – Comparative analysis of mechanisms for implementing alternative payment systems in cross-border payments *in the context of systemic transformations*

Transaction form	Potential use in a cross-border payment system	Potential use in an internal transactions system	Potential for localizing the risk of sanctions (implementation of import substitution policy)
SWIFT	Low	Low	Low
Cash payment for goods and services moving across borders	Low	High	Low
Sovereign payment system MIR	Moderate (limited by country)	High	Low
SPFS	Moderate (limited by country)	High	Low
Fintech in the form of blockchain ecosystems	Moderate (infrastructural and cross-country legal restrictions on the use of digital platforms)	High	High

The analysis of blockchain functionality in the context of cross-border payments demonstrates a high potential for the creation and integration of blockchain platforms in the processes of ensuring international supply chains and transactions. This is due to the emerging opportunities to eliminate the current shortcomings of interbank international payments, expressed in the institution of intermediation as clearing organizations and international systems for the transmission of financial messages. A blockchain solution for cross-border

payments can solve inefficiencies and provide a fast, cheap, and secure alternative to traditional banking methods. Blockchain will greatly contribute to the organization of the global system of cross-border transfers, optimizing the process and storing each transaction in a secure distributed ledger. Transactions on the blockchain are carried out using digital currencies, and the process is accurate, tamper-proof, and less expensive.

The opportunities offered by blockchain create an environment in which transactions can be carried out with cryptocurrency or simple registration of transactional exchanges and transfers of fiat currencies. With a certain degree of confidence, we can claim that the use of blockchain technologies in the formation of supply chains and international financial transactions can have a major impact on the transformation of traditional payment systems at both the national and global levels. The windows of opportunity in the form of reducing transaction fees for international payments, accelerating information exchange procedures, and increasing the transparency and security of financial transactions built on the blockchain create incentives for the transition of financial organizations and the real sector of the economy to new technologies. These effects are formed as part of the digitalization of document flows and optimization of the existing inefficient infrastructure of the banking system for cross-border payments having a wide range of intermediaries.

Indeed, the use of blockchain in cross-border payments carries certain risks and limitations for their active integration into global financial systems. This is due to the instability of digital currencies, violations of crypto exchanges outside politics, as well as existing infrastructural and legal restrictions.

However, they have a significant potential for use. This is evidenced not only by the above-mentioned examples which dwell on the use of blockchain in payment systems by the world's largest financial institutions (Tables 1-3). Here are the most important drivers making countries consider the prospects for building blockchain platforms that help transmit financial messages and transactions at the transnational level, especially those related to the developing category:

- Deglobalization that predetermines the regionalization of supply chain systems on a global scale;
- Sanctions that create risks of disconnecting national financial systems from the global financial infrastructure;
- Active processes in the digitalization and digital transformation of economic processes in accordance with the principles of the Fourth Industrial Revolution.

## CONCLUSIONS

Our review of the current CBDC integration into the economies of individual countries, despite different approaches to the process and its technical design, demonstrates a global trend toward introducing digital currencies into the system of national and international payments. This predetermines some shifts and transformations of the current instruments for regulating cross-border payments in the near future, which will contribute to the creation of regional alliances and country associations in the field of creating unique solutions for payment transactions that do not depend on traditional regulatory mechanisms (SWIFT and other global clearing systems for the exchange of financial messages). The potential of using digital currencies in cross-border payments is being discussed by many countries, and individual agreements are being concluded between their central banks. International financial organizations and national regulators are coming to a consensus that central bank securities will be one of the most advanced mechanisms in the organization of cross-border payment systems. This mechanism for ensuring supply chains is especially relevant for developing countries where the system of correspondent accounts is not perfect and alternative channels of monetary circulation are in great demand.

The prospects and effects of creating alternative channels for international transactions based on the blockchain have been significantly updated by the deteriorating international situation. As a result, several countries increased sanctions pressure and imposed restrictions on the access of financial organizations to international clearing services and payment systems, mechanisms for transmitting financial messages at the transnational level (SWIFT), etc. This issue is of particular importance, for example, for the Russian economy. In the current conditions, the task of seeking alternative channels for organizing national and international transactions becomes vital. The possibility and potential of replacing foreign technological solutions with domestic developments determines not only the global competitiveness of Russia but also forms the basis for ensuring the sustainability of its national financial system and intensifying the processes of socioeconomic development with due regard to existing restrictions.

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