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USE OF SMART CONTRACTS IN INTERNATIONAL TRADE

Introduction

Blockchain is expected to revolutionize various areas of life, including international trade. An extremely interesting feature of blockchain technology is smart contracts. A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract. Smart contracts allow the performance of credible transactions without third parties, which can be used in international trade from trade finance to customs procedures and intellectual property. The potential of smart contracts to increase the efficiency of trading processes is of interest to businesses and governments. The paper examines the importance of blockchain and smart contracts for cross-border trade operations and the impact on various stages of international commodity trade - from trade finance to customs procedures, certification and transportation, and logistics.

Literature overview

Through a comparative study of existing smart contracts and their platforms, Tianyu Feng, Xiao Yu, Yueting Chai and Yi Liu (2019) summarized the shortcomings of smart contracts and the prospects for its further development and research directions. The document summarizes the shortcomings of traditional contracts and existing smart contracts and proposes to address them. The paper presents a model of a smart contract for computer performance, with an improved structure according to the nature and needs of smart contracts. For ease of computer performance, the authors have proposed a method of decomposing smart contracts.

In a theoretical study by Kardonov A. (2018), devoted to the areas of smart contracts and risks when working with them, the author provides a classic example of the use of smart contracts - customer protection service on Aliexpress. Among the risks explored by the author in the development of smart contracts, the compromise of services that

bind the real world to the digital (such as light sensors), the loss of access is associated with the loss of private key, the imperfection of legislation.

In a theoretical study of the legal side of smart contracts, Mark Giancaspro (2017) expresses concern that smart contracts will have significant difficulties in adapting to the existing legal framework governing contracts between jurisdictions. The author addresses potential legal and practical suitability issues arising from the use of reasonable contracts within both civil and general jurisdictions.

A study by Niels Hackius, Moritz Petersen (2017) on the analysis of the current state of Blockchain in logistics and SCM (Supply Chain Management) presented four examples of possible applications of Blockchain in logistics and SCM, which are studied in theory and practice. The authors presented the results of a survey conducted in the Logistics and SCM sector and examined participants' views on the use and benefits of Blockchain. The results show that Blockchain is expected to have a significant impact on the logistics industry and should be considered as a way to improve the industry.

In the context of logistics, improving port logistics by using blockchain technology to develop smart ports is relevant. V.V. Shcherbina (2019), exploring the problems and tasks of the development of port logistics in Ukraine, notes that blockchain technology is a promising direction for the development of port complexes to improve the efficiency of current supply processes. The author describes the process of shipping containers using smart contracts, the Internet of Things and blockchain technology, which enables automation of logistics processes for cargo delivery. The development of digital logistics contributes to the emergence of smart ports and smart regions, which eliminates the need for paper documents.

In the work on the perspective of transaction value using distributed ledger technology in supply chains, Dominik Roeck, Henrik Sternberg, and Erik Hofmann (2019) found six effects of distributed ledger technology that reduce costs or avoid costs in supply chain operations. Also, the authors note that the use of smart contracts reduces the dependence of the supply chain on third parties.

Results

International trade agreements involve many entities and paper documents. There are four main categories of international trading operations: commercial transactions, transport operations, trade financing and official controls. These operations are accompanied by the relevant documents: offer, purchase order, invoice, insurance documents, promissory notes, sanitary and phytosanitary certificates, certificates of conformity, etc. Not only does this increase administrative costs, but also errors, losses and fraud occur. Considerable work can be observed to digitize cross-border trading operations, including research into how smart contracts can be used to reduce export-related documents.

Many financial institutions are working to simplify financial transactions. A series of digital smart contracts allows them to execute an agreement automatically. For example, Bank of America, HSBC, and the Singapore Development Authority (IDA) have created a blockchain application to improve the credit process.

An increasing number of trading operations are occurring on an open account basis in which goods are shipped and delivered before payment is due. Open account trading is the riskiest for exporters. Risk reduction is possible with smart contracts. For this purpose, a platform was created on the basis of the blockchain We.trade, numbering fourteen banks (data for October 2019). The platform registers merchants through banks, after which importers and exporters can record their transactions on the platform by agreeing to the terms of the contract. A reasonable contract provides for a guarantee of payment and automatic settlement when the agreed terms between the parties are fulfilled. We.trade is just one of many projects working in different parts of the world, including a joint IBM project with the Indian company Mahindra and Chinese Sichuan Hejia, the ChainedFinance project, the Marco Polo platform.

The use of smart contracts for trade is of interest to public authorities. In March 2017, Hong Kong's Monetary Policy Authority introduced a blockchain financing platform, with Singapore authorities working with IBM Center for Blockchain. A joint project to develop a global communications trading network, cross-border blockchain infrastructure to digitize trade between Hong Kong and Singapore has also been announced.

The use of smart contracts can increase the efficiency of customs clearance processes and reduce the need for manual verification. In particular, it will allow: submit requests for preliminary decisions, facilitate processing before the arrival of goods and speed up the process of delivery of goods, optimize risk assessment, improve the accuracy of trade and statistics.

But there is not enough technology. Legal frameworks will need to be developed to explain, for example, the legal status of electronic documents. Smart contracts are only used to automate processes and guarantee payment when terms are agreed. They only cover the operational elements of an offline contract. Also to the need for a legal framework, globally harmonized standards are needed for the widespread use of technology.

Political support is needed to facilitate trade integration and create a legal framework that facilitates paperless trade. However, the success of smart contracts will ultimately depend on whether companies see the value in this decision. This will depend on how much the benefits of technology outweigh the costs of adapting current systems. Outside of legal issues, this is possible if the various aspects of an international trade operation, including customs procedures and logistics, are digitized. Stakeholders of using smart contracts in international trade are banks, customs, logistics, governments, and regulators.

Conclusions

The goals of using smart contracts are to fulfill the terms of the contract, minimize errors and intermediaries, reduce costs. Using smart contracts makes it paperless, streamlines business operations, transportation operations, trade finance, and official controls.

Technology is of interest to financial, transportation, insurance companies, government agencies, infrastructure entities, which is accompanied by the development of projects using smart contracts. However, the widespread use of technology requires the creation of a legal framework, globally harmonized standards that ensure interoperability. Smart contracts can make international trade smarter, but it requires reasonable standardization, possible with the collaboration of companies, software developers, governments and intergovernmental organizations.

The success of smart contracts depends on political decisions and, most importantly, on whether companies see the value in this decision.

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