International trade and blockchain technologies: implications for practice and policy

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Abstract. International trade is an important aspect of business. Exchanging goods on a global scale allows states to produce and export goods that they are more efficient in and import the ones that they are not. As a result, countries reduce the cost of production, price of commodities, and expand their markets. Even so, international trade is a complex process that is facilitated by different financial, socio-political, and technological factors. The blockchain technology has revolutionized international trade and has the potential to continue doing so as this smart technology is still at its infancy. This paper analyzes the role and impacts of the blockchain in international trade, including the technology’s benefits, problems and challenges, and recommendations for improving its usefulness. The work finds that blockchain plays a significant role in international trade with numerous benefits. However, a few challenges should be addressed to ensure organizations in international trade benefits fully from blockchain technology.

1. Introduction
International trade involves the exchange of goods and services across borders. Countries globally export or import commodities from other states. The theory of comparative advantage elaborates that international exchange of goods or services occurs due to the existence of comparative advantages among producer countries. Some nations, due to their respective resources endowment, can produce some commodities more efficiently than others [1]. Essentially, the differences in capabilities allow states to produce goods that they are more efficient in and import the ones that they are not. As a result, countries reduce the cost of production, price of commodities, and expand their markets. Even so, international trade is a complex process that is facilitated by different financial, socio-political, and technological factors. The blockchain technology has revolutionized international trade and has the potential to continue doing so as the smart technology is still at its infancy. In this light, it is crucial to analyze the role and impacts of the blockchain in international trade, including the technology’s benefits, problems and challenges, and recommendations for improving its usefulness.

2. Problem statement
The blockchain has disrupted international trade. It is important to evaluate the impacts of technological advanced on global trade. Most new technologies are intended to enhance trade
operations. Nonetheless, such technological developments might have negative or unprecedented effects on business.

3. Purpose statement
Following the uncertainties caused by new technologies in normal global trade operations, this paper intends to answer the following questions:

- What is the role of the blockchain in international trade?
- What are the blockchain technology’s impacts on global trade?
- What is blockchain’s benefit to international trade?
- What are the challenges associated with blockchain in international trade?
- What should be done to improve the usefulness of the blockchain in international trade?

4. Methodology
The study will use a qualitative approach to analyze the blockchain technology in international trade. Evaluation of secondary data, through reviews of current literature, will form the basis of this work. Reliable data from online journals and articles, government websites, international trade organization sites, economics expert commentaries among others, will be analyzed to understand the role of blockchain in cross-border businesses. A discussion of the findings will follow the literature review. The work will conclude with recommendations of approaches for promoting the usefulness of blockchain in international trade.

5. Literature review
Blockchain technology was launched in 2008 and plays a significant role in international businesses. Blockchain is among the numerous emerging smart technologies. The tech came to the limelight as the technology behind Bitcoin, one of the world’s main cryptocurrencies [2]. According to Ganne [3], the technology has the potential to change lives, though some detractors feel that this is just a pipe dream. Nonetheless, blockchain plays a vital role in international trade. The various challenges facing the technology can be addressed to enhance its application in daily financial operations. Blockchain is referred to as a “tamper-proof, decentralized and distributed digital record of transactions that creates trust and is said to be highly resilient” [3]. As a digital record, blockchain is valuable in the various global supply chains associated with international trade. For example, when two companies, importer and exporter, are transacting, blockchain can facilitate the transaction by allowing them to trust each other without a third party.

Blockchain created a more efficient framework for organizations operating locally and internationally. The technology creates as well as enhance transactions’ transparency [4]. Furthermore, the technology eliminates or significantly reduce the chances of tampering with the goods or even the business documents. The use of computer applications enables blockchain users to trace transactions easily [3]. These uses illustrate some of the blockchain technologies roles in international trade. Blockchain helps move from paperless to digital trade process. For example, the smart technology is applicable in customs, certification, logistics as well as insurance offices. These are key areas of international trade where eliminating or reducing paperwork saves time and minimize the costs involved in the processes. Blockchain thus enhances efficiency in trade.

The blockchain technology has, therefore, impacted international trade in many ways. For example, when two firms are transacting, the digital ledger does not require a trusted third party [5, 6]. Traders with limited knowledge of each other can conduct business cheaply without fear of fraud or loss. Furthermore, blockchain technology is tamper-proof, whereby any kind of modifications must be authorized or agreed upon by both parties. Trade automation is another crucial implication of the blockchain. Most of the operations become digitalized, where manual processes in the global supply chains are minimized.
The World Trade Organization (WTO), views blockchain’s impacts on global trade as revolutionary. The perception grounds on blockchain’s ability to remove diverse trade barriers. Previously businesses operating on an international level faced numerous hurdles from the large geographical distances involved, cultural barriers, to differing regulatory requirements. The decentralized record facilitated by blockchain allows permanent and near inalterable storage of transactions [3]. The process utilizes cryptographic techniques with peer-to-peer networks that restrict a single party’s control. The technologies bring manufacturers, suppliers, distributors, as well as customers together, giving them a framework for sharing information without delays associated with the supply chains [7]. The blockchain is expected to create over $3 trillion in new trade by the year 2030 [8]. The statistics illustrate the huge impacts on global trade that the smart technology has.

The effects of blockchain on international trade illustrate the many benefits the technology brings forth. Primarily, WTO’s projections indicate that blockchain technologies have the potential to cut trade costs considerably [3]. Essentially, trade cost cuts will result from the increased transparency as well as blockchain’s ability to automate processes such as financial intermediation and coordination of businesses [8]. More so, the technology can enhance intellectual property rights administration. For instance, blockchain is expected to facilitate and promote government procurement processes from fight against frauds to public contracts management. One of the factors attributed to the reducing expenditure in international transactions is the removal of third parties like insurance service providers. According to Kekhade [9], blockchain helps create trust among organizations. The technology thus guarantees a secure as well as standardized trade regardless of the distance between trading parties.

Other benefits include reduced paperwork, instantaneous updates of records, increased resiliency to cyber-attacks, and quick transaction settlements across borders among other merits. As already noted, blockchain promotes the digitalization of business operations. The process has a benefit in minimizing or eliminating the paperwork in various transactions. Noteworthy, international trade especially, the global supply chains involve many participants. The use of paperwork is, therefore, tedious and time-consuming. Automation and digitalization thus increase efficiency and create time to engage in other productive activities [10]. Transactions are also settled quickly and without delays, previously associated with paperwork and third-party involvements.

Despite the different advantages and benefits associated with the blockchain, several problems or challenges face the technology. One of the leading challenges is the inadequate legal frameworks for blockchain. For instance, research indicates that the technology raises diverse legal, regulatory as well as policy issues [11]. An example, of a regulation case involving the blockchain, is Centra, which is a cryptocurrency firm sponsored by American boxer Floyd Mayweather. According to Browne [12], Centra was restricted in China as well as South Korea for indulging in fraudulent initial coin offering (ICO) activities. Centra’s case is one of the many legal challenges associated with blockchain technology.

Other areas of concern regarding blockchain in international trade are interoperability and operation costs. Noteworthy, while blockchain is renowned for cutting costs due to its increased efficiency, it heavily utilizes electricity to conduct computations [12]. An example is given of South Korea where a single bitcoin mining utilizes over $26 000. The heavy power usage is costly, illustrating an area of concern, especially as more countries adopt the technology. The other issue regards interoperability in this technology. The concern is due to the rising number of actors in an ever-growing sector like blockchain, where, nonetheless, lack of standards can negatively affect utilization [12]. A standard framework allows players in different industries to work or interact with each other, an aspect that is lacking in the little standardized blockchain sector. Notably, the problem is exacerbated by the inadequate legislature, globally, for guiding operations in the blockchain. The application of the technology in international trade can, therefore, be negatively affected by the different shortcomings.
6. Discussion
The literature review illustrates the importance of the blockchain in international trade. Like most of the other technological advancement, blockchain has disrupted the industry. The technological revolution is huge, only compared to a similar one following the introduction of the containers in the international trade sector. Even so, blockchain is a highly welcomed technology due to the way it eases trade operations. The smart technologies roles in international trade are evident, for example, in keeping records of transactions for business across the globe. Apart from the businesses, agencies like custom offices, transport and logistics, certifications, as well as insurance departments can now rely on the blockchain technology. Essentially, the entire global supply chains are strategizing on how to leverage on blockchain to enhance their efficiency.

Nonetheless, blockchain technology has to overcome several hurdles to be successful in the international trade arena. A number of problems are associated with the technology, including issues of legal, regulatory, as well as policy concerns. National and international laws have not evolved enough to handle the diverse challenges that may arise. More so, there are still no set standards of the blockchain networks to inform the global players. These issues may cause inconsistencies in blockchain’s usability in global trade. Interoperability issues among the ever-increasing users of the systems compound the discrepancies in the blockchain. All these concerns should be addressed urgently for the blockchain technology to benefit the international trade fully.

7. Impact of the introduction and development of e-government on the economy
In response to the blockchain’s shortfalls in promoting international trade, several approaches can be used to solve the problems. The primary solution to the issues regards developing proper regulations to guide the application of the technology. For example, while blockchain is hailed for being tamper-proof and more secure from cybercrime, security issues still emerge regarding the technology’s use. The law can, therefore, help to seal possible security gaps. Furthermore, national and international trade laws can inform on the standard of operation, thus helping eliminate the use of fraudulent techniques. An example of this is the charging of Centra and its founders by the US Securities and Exchange Commission for fraudulently using the blockchain technology [12]. The case scenario shows that the technology can be misused, thus requiring the enactment of laws to regulate the industry.

A multi-stakeholder approach is crucial to help find in finding the most appropriate use cases in international trade. A multi-stakeholder approach could help in creating and promoting frameworks that enable networks’ interoperability [8]. As noted, integrating the different technologies by numerous users is a major problem in the blockchain. The multi-stakeholder strategy thus can help in providing clear legal status to guide blockchain transactions across diverse jurisdictions. According to Genna [8] cooperating to create a conducive environment for the wider development of blockchain technology is critical. Global players in blockchain technology must, therefore, find ways to improve.

8. Conclusion
In closing, blockchain technology is here to stay. Business operating across borders must find ways of utilizing the technology to enhance their operations. Blockchain increases efficiency by removing or minimizing paperwork. Furthermore, costs and delays associated with third party players are eliminated. Organizations from diverse geographical locations interact easily due to the trust created by the digital ledger. The different advantages of blockchain in promoting international trade makes the technology a necessity for all organizations willing to thrive. Addressing the various challenges affecting the blockchain is, therefore, crucial to ensure businesses across the globe enjoy the full benefits of the smart technology.

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