



# Modernizing Letter of Credit with Blockchain Technology in Oman

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In the Commercial Transactions Act, the letter of credit is a primary requisite as it is intended to ensure successful business transactions between sellers and buyers. Basically, the buyer undertakes to pay the seller immediately upon receipt of the goods or services, and the seller accepts the promise because the letter of credit by issued-bank guarantees the payment. This process is considered as a problem where the costs and time required to process paper documents to complete transactions have a negative impact on the parties. Our system will be the solution to this problem as we rely on Blockchain technology, a new way of organizing the data and dealing with it, where the commercial transactions are processed in an electronic system that is built primarily on decentralized distribution. This allows all parties to track information over a secure network and does not require a third party.

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## Introduction

Blockchain has become a new frontier of venture capitals that has attracted the attention of banks, governments, and other business corporations. The blockchain was first conceptualized by Satoshi Nakamoto to solve the double spending problem inherent in electronic transactions. Blockchain technology comprises the core system of Bitcoin, a digital currency that runs on a P2P network without any trusted third parties. A blockchain refers to an open, shared, and distributed ledger that enables information disclosure and responsibility attribution, and it is suitable for dealing with valuable information. With unique characteristics, such as the transfer of proprietary property, access control, and activity logging, blockchains enable the tracking for product and service flow among enterprises and across borders. Although, blockchain technology has enabled Bitcoin, the most successful digital currency, but also its widespread adoption in finance and other business sectors will lead to many business innovations. While blockchain has been generating enormous impacts to many aspects of our life, research on blockchain technology is still sparse. where Currently, many applications based on blockchain technology have emerged, which aim to keep the information safe and ensure that it is not changed by unauthorized persons. An example of such applications is letters of credit.

Due to the increasing rate of fraud in many commercial transactions at the present time, many have resorted to using the blockchain system to save data and ensure its integrity. Among the most important applications of blockchain technology are letters of credit. The letter of credit system ensures that there is a third party between the seller and the buyer documenting business transactions in the payment of money such as the bank, but to facilitate this process more we decided to establish a letter of credit system based on blockchain technology without the intervention of a third party to speed up the process, ensuring that it is fully completed and also saving data properly to ensures that it does not change. The application of blockchain technology in the field of letters of credit is a new term at the moment and this is what that will be included in our research.

## Chapter 1



In the traditional letter of credit transaction, the parties concerned transfer the physical copies by fax, mail, scanner or courier. This manual process extremely affects what it takes to complete the transaction between bank and a customer. This process is considered as a problem for traders and customers, especially when the transaction involves shipments with short transit times, where the costs and time required to process paper documents to complete transactions have a negative impact on the parties and the speed of trade.

The main aim of our system is to use blockchain technology in business transactions to solve the letter of credit problem. The use of blockchain will provide considerable potential to reduce the timelines related the exchange of import and export documents, will help improve working capital furthermore it enhances trust, security, transparency and synergy among the relevant stakeholders.

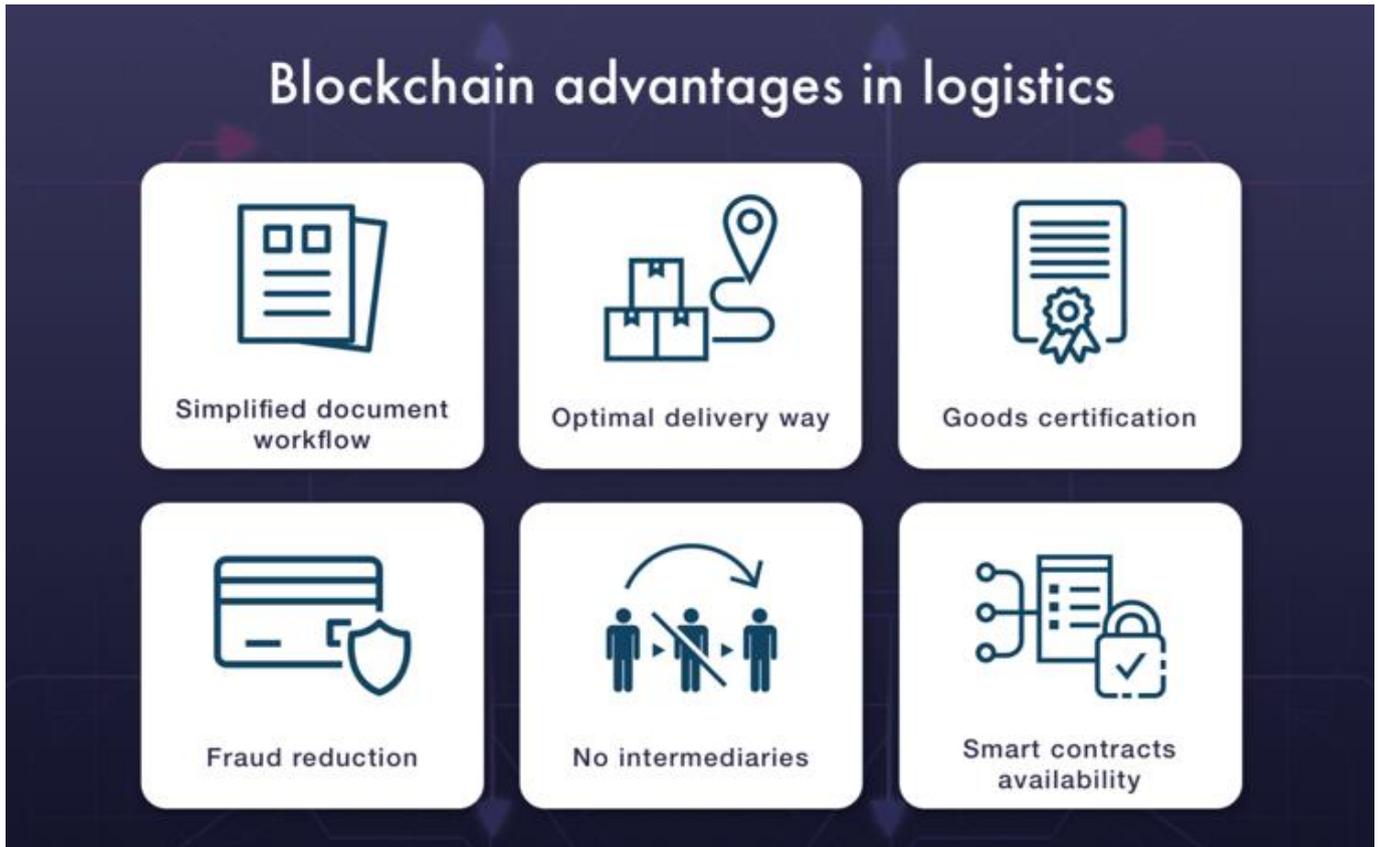
## **Chapter 2**

Blockchain technology offers an innovative platform for a new decentralized and transparent transaction mechanism in industry and business. "Blockchain is a decentralized transaction and data management technology developed first for Bitcoin cryptocurrency. The interest in Blockchain technology has been increasing since the idea was coined in 2008. The reason for the interest in Blockchain is its central attributes that provide security, anonymity and data integrity without any third-party organization in control of the transactions." [1] The blockchain technology is based on a method by which previously unknown parties can jointly generate and maintain practically any database on a fully distributed basis where transaction correctness and completeness are validated using consensus of independent verifiers. The system works in a way that a copy of the database or its partial copy is distributed to each party, and such party may then make changes to the database subject to collectively accepted rules. The blockchain is an undeniably ingenious invention. By allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet. There are three main advantages of blockchain which are: it is anonymous and free to join, submitted data cannot be altered, and published data cannot be removed. This kind of technology changes the way transactions are conducted a decentralized system, without using centralized system. [2], [3]

## **Blockchain Technology in Logistics**

It is important to provide more safety for these industries to ensure that they are not manipulated and well preserved. Entrepreneurs from many other industries are trying to use the blockchain technology in other areas of Non-industry. Blockchain explores more and more industries every day. Entrepreneurs from many other industries are trying to use the blockchain technology in other areas, and the window of opportunities looks impressive.

Blockchain has many advantages such as transparency, safety, and dequantized. Many people now use it. Some companies have tended to use this technology in other fields that have nothing to do with currency and cryptocurrency financing. The logistics industry involves many parties: manufacturers, customers, suppliers, auditors, etc. [4] The blockchain technology offers benefits for everyone in this chain. as it allows all customers to keep track of each product series, from manufacturing to selling. The information stored on the blockchain is not editable, making it easy for auditors to access and review all series and transactions with ease. This makes this technology safer and more transparent.



**Figure 1.** Blockchain advantages in logistics.

## Letter of Credit

It is a database used to ensure that the distant buyer will receive her goods. The letter of credit depends on documents rather than an examination of goods. This will ensure the integrity of the document. In this case, if the documents are forged or altered the process will be cancelled. A Letter of Credit guarantees the buyer's payment to the seller. In addition, A Letter of Credit is a formal trade instruments and is usually used where the seller is unwilling to extend credit to the buyer. It is issued by a bank and ensures the timely and full payment to the seller. [5]

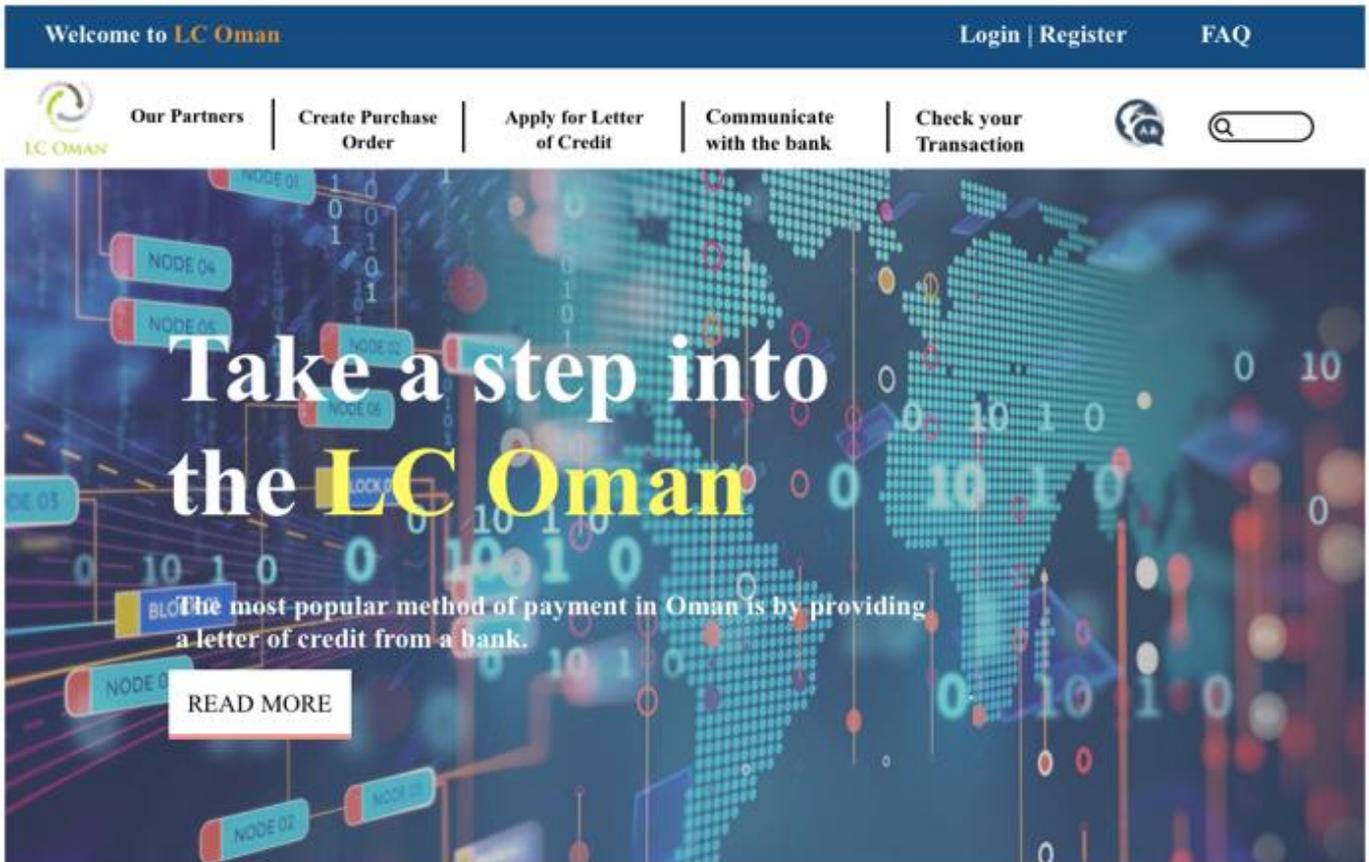
## Results

The main aim of our system is to use blockchain technology in business transactions to solve the letter of credit problem. The use of blockchain will provide considerable potential to reduce the timelines related the exchange of import and export documents, will help improve working capital furthermore it enhances trust, security, transparency and synergy among the relevant stakeholders. The system has two sides, buyer screen and seller screen,. To do this application we will use Android studio to create application by java language. In each letter of credit transaction, the issuer's obligation to pay the beneficiary is conditioned on the beneficiary submitting documents that strictly comply with the letter of credit terms. Therefore, documentary conditions and the strict compliance principle protect the applicant and issuer by providing a basis before paying the beneficiary.

The idea of a system or application that the user enters the application and will face several options, in case he wants to create a request presses the desired option and enters all the required data, then he saves the data in the system, if he would pays directly, it is over, but if it pays later he wants to click on the option to create a letter of credit to document the transaction further, and the



buyer communicates with his bank to complete this process, where the bank will pay the amount to the seller, and the buyer will pay the money to the bank later.



**Figure 2.** Interface of our system.

## Conclusion

Blockchain has emerged as one of the most promising and potentially transformative technologies of recent times. Despite the large interest that blockchain technology has received starting from 2014, literature on the blockchain in application to port logistic is still very limited. The use of the technology to store and transact cargo documentation is expected to increase the accuracy and consistency of the information flow. Due to blockchain novelty and limited supplication, blockchain is still immature. Since blockchain technology is still immature, much of the expected benefits provided by the technology are exaggerated in terms of impact by the parties who aim to profit from the technology implementation. As identified in this research project, blockchain aims to enhance process visibility and consequently, the process coordination. In our system we decide to use one of the most important applications of blockchain technology which is letter of credit. LC transactions allow possible exploitation by fraudsters to fabricate and forge documents that may plausibly undetected by unsuspecting users. Banks are unable to cancel their payment undertaking under an LC transaction even when fraud is suspected. We present this study as a thorough review of the blockchain literature that attempts to offer a business benefit focused perspective on blockchain.

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