# BLOCKCHAIN AND TOURISM

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**Abstract**
*This article focuses on the analysis of the innovative cryptocurrency market to see the evolution of this information and what are their prospects in tourism. The nature of the alert development of cryptocurrencies in recent years leads to a rapid increase in their popularity among young people and thus to the spread of transactions in this new market.*

**Key words:** *tourism, blockchain, crypto tourism*

**JEL Classification:** *L83, O10*

## I. INTRODUCTION

*The blockchain network can be defined as a large register where all the digital information of a transaction that took place on that block to which all users can access is recorded. We can imagine this network as a register that keeps track of all transactions, but this register is not controlled by an entity such as a bank but can be accessed by anyone at any time while keeping personal information encrypted. We can conclude that the blockchain network is a digital platform that uses cartographic methods to store information, it cannot be falsified or reversed, and a platform where the entire history of each transaction between users is recorded, validated, stored and publicly visible by all.*

## II. HOW BLOCKCHAIN TECHNOLOGY WORKS

Blockchain technology is a distributed system because each node that is in the network has equal rights and obligations, stores the same amount of information, and are connected in real time with each other. In a blockchain network any user can make records after they have been validated by other users so that after this process they are added to the block and for this reason this type of network is also known as distributed ledger technology DLT (N. Daskalakis and P. Georgitseas, 2020)

The blockchain has some important properties that can be considered as its hallmarks compared to other types of networks.

- A blockchain is transparent, verifiable, and permanent by nature. Blockchain data is shared between networks and each node has a copy of them.
- A decentralized consensus had to be reached with a blockchain to create each block.
- Blockchain transactions cannot be altered because when a set of transactions is validated a new block is created based on a consensus that makes the transaction data permanent and it is not possible to change a single transaction in that block without the support of the majority nodes participating in the transaction.
- Unlike a centralized client-server architecture, it is managed by a decentralized network for communication between nodes and validation of new blocks, thus incorporating a distributed computing system.
- Because any transaction in a blockchain is verifiable, it gains digital trust in this way. The transparency of a blockchain also makes it without permissions, which means you won't need to have access control and passwords if the blockchain is public.
- The blockchain is in the opinion of many very secure due to the design of its architecture and for this reason it does not need supervision for in case someone tries to access certain data.

The blockchain at first view is no different from a web-hosted website or applications running on a smartphone or computers connected to a local network. The differences become visible when we look at the level of architecture. A website, an application or a local network all have one thing in common and that is that they are all part of a centralized structure administered by a supreme authority. This structure is commonly known as the client-server architecture as can be seen in Figure 1.

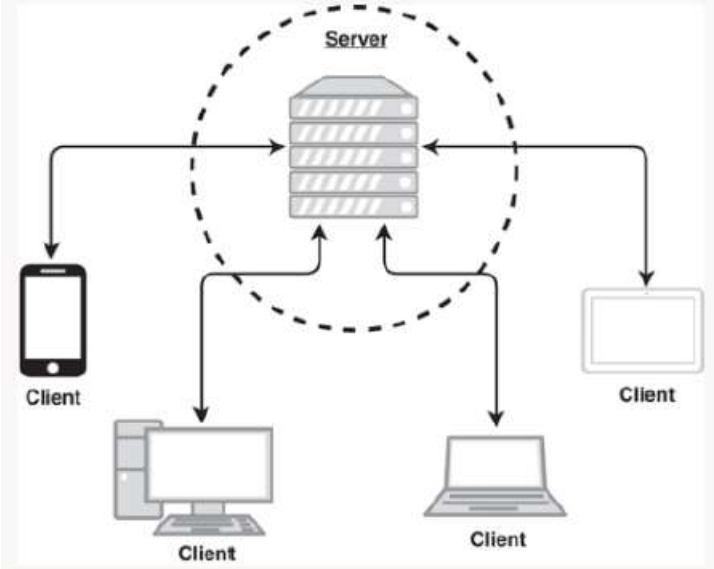


**Figure 1 – Client – Server blockchain architecture**

For example, when a user visits a website or uses a smartphone application, he becomes the client of a central server that provides all the necessary services and data. In a local network, there is a server that assigns IP addresses to participating devices and manages inbound and outbound activities, as well as providing Internet access. Under the tutelage of a centralized client-server system, the central authority, in this case the server, has the supreme power and can decide whether to provide access to data or services to users.

When we look at how the blockchain is built in figure 2, we can see a completely different architecture, this architecture is very different from that of a client-server architecture. Each node participating in this architecture acts as both a client and a server, eliminating the need for a central authority. This type of network is called a peer-to-peer or P2P network.

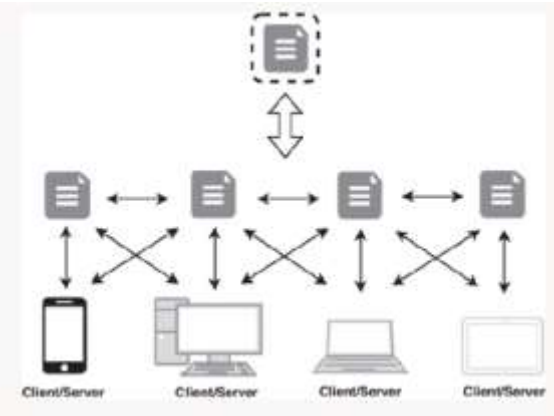


**Figure 2 – P2P network**

One of the most common ways in which these transactions are verified in the blockchain is the so-called mining process. This mining is the process that must be followed to add a new block within the blockchain, this process being a kind of blockchain registration service.

These "miners" use specialized hardware and software components to perform cryptographic calculations to solve complex algorithms generated by the blockchain system. Once the algorithm is solved, the entire network is informed and checks the solution and after 51% of the other miners verify the transaction, the new block will be added to the chain. Finding the solution of this complex algorithm is proof of the work of the miner, who will receive as a reward a certain number of cryptocurrencies depending on the blockchain he mines. This mode of operation is very different from traditional payment systems because the transactions performed have a very low or even zero cost.

This reward that each miner receives creates competition within them because each one fights to be the first to solve the algorithm and receive the prize. Mining itself is a very complex procedure that requires very high computing power and consumes large amounts of energy. As users and the number of cryptocurrencies and transactions increase, the operating process becomes more and more demanding and while a cryptocurrency is becoming more popular the need for stronger computing power will be greater.

In conclusion, in a blockchain network there are nodes and miners. Nodes are responsible for recording transactions while miners are specialized users who use specific hardware and software to collect and validate information from a node transaction. Should this validation process stop this type of network could collapse because there would be no optimal way to validate a transaction before it is entered in a new block.

### III. APPLICABILITY OF BLOCKCHAIN TECHNOLOGY IN TOURISM

According to (Niaz Chowdhury, 2019) the blockchain has been the subject of many debates lately, both in the scientific community and outside it, on what can and cannot be achieved using this innovative technology. Academics, developers, and entrepreneurs have developed their own views on this technology and each group criticizes or praises this technology for its ability to change the current digital infrastructure and its practices. Even though this technology was initially developed to bring innovations in the tourism system, the potential of this technology does not stop only in this segment. For a start we need to figure out which areas where this technology could come with an advantage so after my analysis, I concluded that the areas where this technology can be fully used are the field of AI and the field of IoT. With the help of the blockchain, applications can be created that can serve the citizens of a country, the entrepreneurial and financial field and finally the field of electronic booking.

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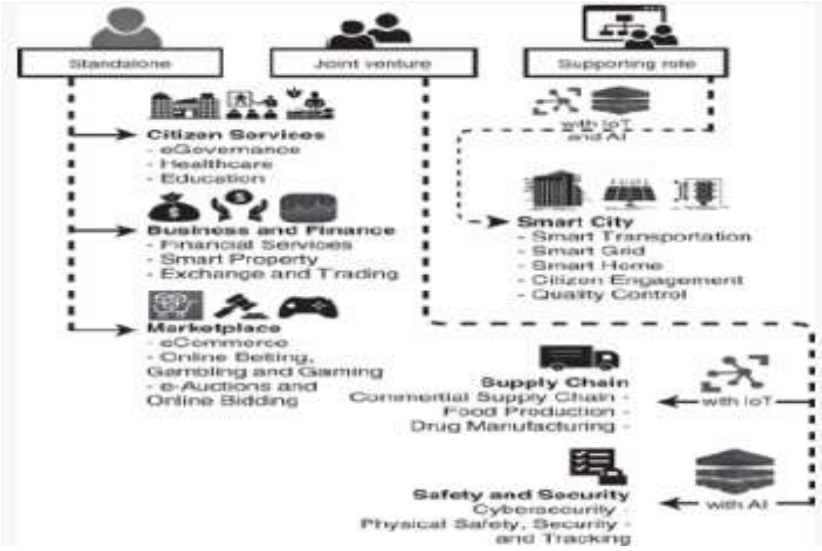


**Figure 2 – Classification of areas in which blockchain technology can be applied**

According to (Niaz Chowdhury, 2019) traditional financial services tend to be very slow, prone to errors and disjoint. The nature of these systems necessitates the intervention of various intermediaries to monitor transaction data and to resolve disputes that may arise between those performing the transactions. These processes operated by intermediaries bring with them a high cost of maintenance, stress and a lot of lost time, things that could be avoided or at least diminished by using blockchain-based services. The entire asset management industry can benefit from blockchain technology because current practice involves using brokers to keep track of the record of transactions and records that an investor makes.

By using a blockchain-based distribution register, the process can be simplified and the need for a specialized broker can be eliminated, thus increasing the speed of trading and rebalancing assets. International or interbank payments can be made faster, more efficiently and most importantly without commissions on the blockchain technology of Ripple or Stellar networks, which offer a much higher quality service than the traditional one, shortening the time we would otherwise have spent. at the bank or waiting for our funds to be transferred to our current account.

Tourist's services are another sector where blockchain technology can play a significant role because it can reshape the centralized tourism ecosystem that is currently the most favored by eliminating the need for an intermediary, this being the travel agency thus giving more power to clients. By using this technology, the personal data of each client regarding the tourism offers or the analyzes they performed will be secured and they can be accessed at any time and at any time by the client.

Cryptocurrencies, as a form of payment, have gained a modest position in e-commerce but enthusiasts understand that there is a lot of potential to develop this method of payment. In 2015, about 10% of Eastern Europeans used cryptocurrencies as a form of daily payment, a very impressive figure for such a new technology. One of the possible cases of using the blockchain in eCommerce is the use of cryptocurrencies as a more secure and tax-free means of payment.

Cryptocurrencies could not exist without the help of blockchain technology, and their commercial use offers several advantages, including fewer cases of fraud due to more rigorous authentication and security measures, reducing the need for third-party processing agencies that charge fees and are not at kind of fast. The emergence of more easy-to-use digital wallets has helped ease entry barriers for new cryptocurrency users and adding payments to them in this rising e-commerce could allow retailers to attract a new segment of users.

## CONCLUSION

Cyberspace is constantly changing as it is a highly contested and unique environment requiring a considerable amount of trust in a crowd to make the connections necessary for the system to run smoothly. Trust is a delicate asset and difficult to grant to a user without posing a major risk to an organization, so cyberspace remains a target for attackers who aim to obtain confidential information by exploiting gaps in an organization. In the context of cybersecurity, the blockchain has two roles to play.

First, we already know that the blockchain is immutable or, in other words, information that is written in a blockchain will stay there forever and cannot be changed. This is a powerful feature that can contribute immensely to the development of security applications and secondly, the blockchain is distributed and decentralized and the use of this technology will help the transition from a system based on a centralized architecture to a decentralized one.

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