



## ADOPTION AND USAGE OF BLOCKCHAIN TECHNOLOGY FOR HOSPITALITY AND TOURISM INDUSTRY

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### **Abstract**

*Blockchain technology is an online platform that tracks assets and logs transactions chronologically using networked distributed ledgers. Digital databases known as block chains require a computer network to function. Because to its unique qualities including data integrity, security, decentralization, and dependability, blockchain technologies have attracted a lot of attention from academics and business. One of the main reasons for conducting studies on customers' happiness and adoption is because their adoption rate is still low. Addressing the factors that influence the use and acceptance of blockchain technology will help solve the adoption problems effectively. In order to provide a complete knowledge of what influences the adoption of Blockchain technology and address the key problems and possibilities across many industries, this systematic review reviewed research that had been published on the topic. The objective of this study is to describe the characteristics of blockchain technology in the travel and hospitality sectors and how those sectors are impacted. The information gathered from secondary sources is the foundation of this study.*

**Keywords:** *Blockchain Technology, Tourism, Hospitality, Opportunities.*

### **Introduction**

Blockchain technology is referred to as the recording of online transactions in chronological order and can track assets with the help of shared ledgers in a network (Anderson, 2016; Peters & Panayi, 2016). Digital databases called blockchains need a network of computers to run. (Gupta, 2017; Wright & De Filippi, 2015). The word "block chain" comes from the fact that transactions in a blockchain are encoded as blocks that are linked to one another in chains (Crosby et al. 2016; Gupta, 2017; Huckle et al. 2016). Blocks keep track of transactions in chronological order, together with timestamps and a distinct number (i.e., hash) referring to earlier blocks (Gupta, 2017). While the governing principles of various blockchain networks may differ, all its participants must concur that the transactions are, in fact, lawful (Davidson, De Filippi, & Potts, 2016; Pilkington, 2015). Once the blocks have been created and chained together, neither the order of the blocks nor the records of transactions can be edited or erased from the blockchain. This offers tamper-proof, immutable data management systems (Gupta, 2017).

Blockchain should therefore be pursued in order to lessen reliance on middlemen in a variety of sectors, particularly the business sector and the travel and tourism sector. This study looked closely at blockchain technology and how it might affect the hospitality and tourism sectors in the future. The primary objective was to create a blockchain-based framework that may raise the level of disintermediation in this sector. The research answers an important question about how blockchain technology may help eliminate new middlemen from the tourism supply chain by achieving its core objective of creating a framework that will result in further disintermediation. The necessity for a more effective and efficient way to manage a tourist business is justified by the increased demand for a



model to decrease the time and expense connected with travel related to tourism as well as to secure travellers' data. With the use of this technology, it is believed that the level of disintermediation in the tourism sector would rise, decreasing waste and boosting data security.(Rashideh, 2020).

Millions of travellers can avoid the added expenses of utilising middleman platforms by using crypto currencies as a form of payment; as a result, they will be able to reserve hotels and plane tickets directly from the source (see, e.g., booking.com, Skyscanner and Expedia) (Revfine, 2018). Peer-to-peer transmissions will allow each user to access all of the information they need for their journey, doing away with the need for a central server.

This suggests that blockchain technology may be able to provide transparent transactions because all actions and activities will be accessible to all users and will not require a third party to carry them out (Beonprice, 2017; Calvaresi, Leis, Dubovitskaya, Schegg, & Schumacher, 2019; Revfine, 2018; HITEESH MALVIYA, 2019).

A distributed ledger, also known as a shared ledger, is the key component of blockchain technology, making all transactions made within as well as the ownership status of assets public to all blockchain participants (Dogru et al., 2018). Due to the need that all transactions be confirmed by a majority of the blockchain's users, blockchain is a safe system (Pilkington, 2017).

Blockchain technologies, which were developed in the 1990s, enable enterprises to have a greater level of process automation in an organisational network (Valeri 2016). Blockchain makes it possible to create a sizable database made up of a collection of "blocks" (each block can contain one or more transactions) connected to one another and dispersed over a peer-to-peer network. For each transaction to be effective, it must be monitored and approved in some way (Baggio and Fuchs 2018).

One of the most recent and dramatic shifts is the economy's digitalization, which offers new opportunities for developing company models. The way that entities involved in the economic system share important data is changing thanks to new technologies like information and communication technologies (ICT), blockchain (BC), internet of things (IoT), and artificial intelligence (AI). Among these technologies, BC offers a completely novel strategy, attracting significant interest from academics working in a wide range of application domains. A sort of distributed ledger technology (DLT) called blockchain was first included in the bitcoin protocol, a cryptocurrency introduced in 2009 by an unidentified creator going by the moniker Satoshi Nakamoto (Giungato, et al., 2017). Due to its popularity, virtual money is now widely used in business transactions. Consequently, BC has transformed not only the financial industry but also a variety of other economic sectors, including as manufacturing, economics, health, agriculture, etc., by promoting effective, transparent, and sustainable productions and services (Rana, et al. 2021). BC has the potential to save costs for both businesses and customers, boost process effectiveness, enhance personal data privacy, boost confidence between business partners, and lessen the need for middlemen (Rashideh, 2020). In the so-called industry 4.0, BC is frequently linked to other technologies that are revolutionising and upgrading the industrial sector. There is not currently a clear-cut definition of blockchain that everyone agrees on. According to Treiblmaier (2018). In order to create tamper-proof and permanent records, it is described as a digital, distributed ledger that is added to and logged in chronological sequence. As a result, BC is a brand-new decentralised and distributed digital ledger that gathers and organises information and keeps it permanently, giving stakeholders access to data that is cryptographically protected(Rana et al., 2021).



## Review of Literature

Blockchain is a ground-breaking idea that has caught the interest of businesses and governments all around the world. In essence, distributed ledger technology is a collection of data and transactions that are gradually registered and tracked over a network of distributed ledgers (Felin & Lakhani, 2018). Blockchain and the cryptocurrency Bitcoin were both introduced in 2008 as disruptive innovations (Bohme, Christin, Edelman, & Moore, 2015). Nakamoto (2008) recommended that the blockchain concept be represented using bitcoins (e.g., Bitcoin). Without a centralised control system, this technology runs as a peer-to-peer network. Ledgers are synchronised across the entire network, and transactions can take place without the involvement of a third party (Hawlitschek, Notheisen, & Teubner, 2018; Lacity, 2018). The system is accessible to everyone desiring to conduct legitimate transactions thanks to its framework. (Drescher, 2017). Every node linked to the network is guaranteed a high level of security when creating or validating transactions thanks to the usage of cryptographic methods transactions (Drescher, 2017; Iansiti & Lakhani, 2017; Lacity, 2018; Nakamoto, 2008). Users will have access that is more secure, anonymous, enduring, traceable, and decentralised as a result (Nakamoto, 2008). Each link added to the chain includes an identification code known as a "hash." Additionally, data may be tracked with greater precision (Seffinga, Lyons, & Bachman, 2017), It enhances the security of a system.

A blockchain is an executed and shared distributed database of records or digital events that serves as a public ledger for all transactions (Crosby et al., 2016). The majority of the system's users agree to verify each transaction in the public ledger. Blockchain is becoming more and more prevalent in a variety of business sectors, including finance, the economy, healthcare, the Internet of Things, and security, thanks to its attributes of transparency, security, and decentralisation (Varelas 2019). Stafford and Treiblmaier (2020) analyses users of electronic medical records (EMRs) in the US are being asked for their opinions on the viability of blockchain technology for EMRs, security, and storage, based on business and academic research. Another instance of BCT-related medical research, Biswas et al. (2020) the management of synchronisation and interoperability for decentralised e-health systems based on BCT. In terms of security, Angieri et al. (2019) proposes suggests a disordered independent organisation for managing internet addresses and makes an argument while Shahriar Rahman (2020) uses BCT to build a platform for cross-national data sharing.

Using the technological acceptance model, Nuryyev et al. (2020) investigated the factors impacting the adoption of cryptocurrency payments in small to medium-sized tourist and hospitality-related businesses (TAM). They discovered that social influence, self-efficacy and innovativeness of the owner/manager, and strategic direction all had an impact on the adoption of cryptocurrencies (Nuryyev et al., 2020).

Three primary factors make the deployment of BCT in the travel and hospitality sectors inevitable. First, the unjust climate in the sector makes hazardous capital investments, uneven travel and consumer spending patterns, seasonality, and operational sensitivity more likely. These reasons make the market call for an innovative technology that maximises operational effectiveness (Shermin, 2017). Second, the global competition brought on by digitalization is currently fierce in the hospitality and tourism sector. As a result, the sector is prepared to create, obtain, and adopt disruptive innovations like BCT (Kizildag et al., 2019). Third, BCT applications are multifaceted and have several potential advantages for the hospitality industry, including greater information exchange and verifiability, which eliminates inefficient transactions, theft, and fraud. The capacity of blockchain technology to transform



conventional methods of detecting and removing false and unjust online customer reviews in the context of the hospitality sector (Kwok and Koh, 2018; Önder and Treiblmaier, 2018; Sigala, 2017). Fake and unjust reviews are a serious problem for hospitality operations that could come up again given how competitive the market is getting (Calvaresi et al., 2019).

Hotels, restaurants, airlines, travel agencies, and other hospitality businesses could enhance their service quality, guest satisfaction, and profitability by integrating blockchain technology even though the technology is still in its infancy. The use of blockchain technology will benefit all stakeholders in the hospitality sector as more businesses in this sector do so. We outline several potential applications for blockchain technology in the hotel sector in the section that follows(Rejeb, 2018).

A robust and secure digital environment for the transmission and sharing of client/passenger information is provided by blockchain to travel businesses and agents. Travel agents are required to provide sensitive customer data to both commercial airlines and lodging establishments on this subject. The usage of Blockchain as a solution to avoid lost passenger bags should be encouraged and supported by travel operators. Using blockchain will make it easier to provide precise location updates for traveller luggage in real time. In light of this, theoretically and logically speaking, losing passenger luggage by airlines should be a thing of the past thanks to the adoption of blockchain technology. Superior security is provided for data and information maintained within a blockchain. It would be incredibly challenging to hack a Blockchain and retrieve sensitive data (a block). This is due to a Blockchain's usage of highly advanced algorithms and cutting-edge computer modelling frameworks, which would make it extremely difficult for computer hackers to compromise (Orcutt, 2018).Although it is possible, it would be incredibly difficult to achieve a Blockchain breach. If it does, human error in the Blockchain framework's initial design is typically the primary cause (Schon-Zibell and Phair, 2018). In table 1. Characteristics of blockchain technology are mentioned.

**Table 1. Characteristics of Blockchain Technology**

Sr. No.	Characteristics	Description	References
1.	Decentralization	Blockchain technologies are decentralized and do not require a single point of control.	(Khalifa, 2018; Horst Treiblmaier, 2019; Guang Chen, Bing Xu, Manli Lu and Nian-Shing Chen, 2018; Mariemma I. Yagüe and Antonio Guevara-Plaza 2021)
2.	Transparency	A limited number of users have access to the data on a blockchain.	(Beonprice, 2017; Calvaresi, Leis, Dubovitskaya, Schegg, & Schumacher, 2019;Revfine, 2018;



			HITESH MALVIYA, 2019; Horst Treiblmaier 2019; Paul Willie, 2019; Ali Ihsan Ozdemir, Ilker Murat Ar, Ismail Erol, 2019)
3.	Traceability	Convenient and effortless tracking capabilities	(Nicholas, B. P., 2017; Nam, Dutt, Chathoth, & Khan, 2019; AbderahmanRejeb, Karim Rejeb, 2019; Paul Willie, 2019; Mariemma I. Yagüe and Antonio Guevara-Plaza 2021; Mahak Sharma, Rajat Sehrawat, TugrulDaim, Amir Shaygan 2021)
4.	Trust	Trust in the honesty and security of payment processing With a high level of security and the knowledge that their transactions and identities are secure, stakeholders can communicate and conduct business with one another.	(Calvaresi, D., Leis, M., Dubovitskaya, A., Schegg, R., & Schumacher, M. 2019; AbderahmanRejeb, Karim Rejeb, 2019; Paul Willie, 2019; Ali Ihsan Ozdemir, Ilker Murat Ar, Ismail Erol, 2019; Hannes Thees , Greta Erschbamer and Harald Pechlaner, 2020; Guang Chen, Bing Xu , Manli Lu and Nian-Shing Chen, 2018; Mariemma I. Yagüe and Antonio Guevara-





			Plaza 2021)
5.	Cost Reduction	Cost reductions are a result of disintermediation and automation.	(Waleed Rashideh, 2020; Ma & Lee 2019; Sharma et al. 2020; Mariemma I. Yagüe and Antonio Guevara-Plaza 2021; Mahak Sharma, Rajat Sehrawat, TugrulDaim, Amir Shaygan 2021)
6.	Flexibility	Anyone with the proper authorization may access it from anywhere. It offers a collaborative setting where individuals may work and exchange.	(Waleed Rashideh, 2020; AbderahmanRejeb, Karim Rejeb, 2019)

### Research Methodology

A systematic review literature is a method for finding, choosing, evaluating, and synthesizing the pertinent articles on a certain topic. It should be carried out in a precise, open, and repeatable manner that results in an in-depth, thorough, and high-quality evaluation of the study topic under consideration(Christofi et al., 2019).In fact, the SRL procedure's reproducibility helps to improve results' consistency, permits data synthesis, and is thus a framework that may include already-existing information(Vrontis&Christofi, 2021). In this work, a particular methodology that assures the quality of the research and prevents the loss of scientific information was followed in order to achieve these aims.(Giacomarra et al., 2020) first, the conceptual restrictions of the investigation were established, which required concentrating on a certain area. In this instance, BC technology was looked into, in particular how it is used in the tourism industry to enhance agency services and the standard of travel for tourists. This is due to the large and growing amount of academic works that are given in various databases and deal with the implementation of BC technology. Secondly, the Boolean OR/AND operator was used to choose research paper. Recent evidence on use of BC technology in the travel and tourism sector; the period between 2017 and 2022 (1 March) was taken into consideration. This study is based on the data collected from the secondary sources the academic research-supporting databases, including Science Direct, Scopus, and Web of Science, were selected from a variety of databases.

### Result and Conclusion

Blockchain is essentially a series of blocks that uses a public ledger to store all committed transactions. When fresh blocks are added to the chain, the chain continues to grow. Blockchain operates in a decentralised environment made possible by the inclusion of numerous key technologies, including distributed consensus methods, cryptographic hashes, and digital signatures. There is no need for any intermediaries to check or verify any of the transactions because they all happen decentralised.



This study aims to analyse the body of knowledge and pinpoint the key features of blockchain technology. To achieve the goal of the study, a regressive comprehensive examination of the existing literature was conducted using data from reliable sources such as Scopus, Google Scholar, Web of Science, and other pertinent sources. Because the new computer paradigm assures immutability, transparency, programmability, decentralisation, and distributed trust, Blockchain technology is ideal for a variety of industrial and business use cases (H. Treiblmaier 2019). More specifically, transactional data are irrevocable, unalterable, and irreversible once they are deposited in the ledger thanks to Blockchain's immutable recordkeeping feature. Since it is impossible to forge or change data once it has been accepted by the consensus process and transmitted to the distributed ledger system, this fundamental characteristic ensures great data integrity (P. Aspiron, P. Hübner, P. Moriggl 2019). Another important characteristic promoted by Blockchain technology, and more specifically by the public type, is transparency. Through messaging encryption and cryptographic protocol, the ledger keeps a clear record of all transactions that have taken place on the network while preserving the secrecy of the persons involved..

Blockchain technology may provide a means of verifying data validity, preventing manipulation from unethical stakeholders, and safeguarding customers' privacy (Line, et al., 2020). Some travel companies, in fact, such as LockTrip, Globaltourist, Winding Tree (Yadav, et al., 2021) and Travel Chain (Line, et al., 2020) have carried out a platform or a system based on Blockchain technology for protecting both their privacy and that of customers. As an illustration, Travel Chain has developed a Blockchain platform where users may safely share information about their gender, age, purchases, locations, hotel stays, search histories, and other activities (Line et al., 2020). Consumers are given a coupon in return for their data that can be used to reserve travel accommodations such as hotels or cars. A digital ledger might also be advantageous for tourism attractions because it offers an unchangeable reputation and rating system that prevents false accounts from removing or altering review data (Karode, et al., 2020). Thanks to a dependable and unchanging information system for a tourist attraction, the online review system will become more trustworthy (Irannezhad and Mahadevan, 2020). As results Blockchain technology can contribute to: a) obtain costumers true data; b) protect their personal data in a distributed ledger, c) offer a reliable review of a tourist service, and; d) offer empowering costumers by enabling them to own and control their personal information.

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