



BLOCKCHAIN TECHNOLOGY: THE WAY FORWARD FOR HOSPITALITY AND TOURISM

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Abstract

Blockchain technology is an online platform that uses networked distributed ledgers to track assets and record transactions in chronological order. Blockchains are digital databases that depend on a computer network to run. Blockchain is a decentralised database system with robust security built on several data protections and it has high capacities. Because all actions and activities will be accessible to all users without requiring a third party to undertake these operations, this suggests that blockchain technology could enable transparent transactions. The most significant impact of blockchain technology on the tourism sector is its capacity to raise the level of disintermediation. By shifting power from suppliers to consumers, the emergence of online travel firms has altered the market structure of the tourist industry.

Keywords: Blockchain Technology, Tourism, Hospitality, Opportunities.

Introduction

Blockchain is a decentralised database system that is based on a number of data points and has great capabilities and a robust security mechanism. It can be described as a sizable distributed public ledger that keeps track of transactions across a network (Gatteschi, Lamberti, Demartini, Pranteda, & Santamaria, 2018). Blockchain technology eliminates the need for travellers to present their physical IDs by using digital ID, which speeds up travel and decreases waiting times. Businesses that are affected will be able to establish safe digital records and store sensitive data securely thanks to the potential application of blockchain technology (BCT)(Rashideh, 2020).

In 2019, one of the most significant businesses in the world was tourism, which generated 272 million employment and 5.5 percent of the global GDP (World Travel & Tourism Council, 2021). One out of every four new jobs created over a five-year period prior to the COVID-19 epidemic were in the tourism sector. For instance, in 2019, the sector increased at a rate of 3.5%, surpassing the world economy for the ninth consecutive year. The tourism sector contributes significantly to the growth of the global economy and is interconnected with many other sectors of the global economy (Erol et al., 2022).

To ensure that sales processes between sellers and purchasers are carried out legally and that the necessary parties receive commissions for their services, intermediaries are in charge of verifying and recording transactions. Currently, businesses like Uber, Lyft, and Airbnb are acting as middlemen by ensuring the dependability of its drivers and apartment owners. The goal of intermediaries is to benefit economically as well (Kohler, Stribl, & Stieger, 2016).

A blockchain, in a nutshell, is a distributed database of all public transactions or digital events that are carried out and shared among participants, where the information cannot be wiped but is instead validated by the vast majority of system participants (Crosby et al., 2016). Four benefits of blockchain include shared ledger, security, effectiveness, and smart contracts. (Dogru et al., 2018).



In addition, blockchain was named one of the top emerging technologies for 2016 and 2018 by both the World Economic Forum and Gartner (a business that conducts research and consulting in the field of information technology) (Calvaresi et al., 2019).

The potential of BCT goes beyond the simple use of digital currencies, optimised product distribution, and advanced trade models in the tourism and hospitality sectors (Treiblmaier, 2019). However, especially in the context of hospitality services, this potential is still largely untapped. This is partially a result of the industry professionals' widespread misunderstanding of what BCT is and how it operates (Nam et al., 2019).

A consensus that is predetermined by the blockchain's participating members is used to verify transactions on the platform (Pilkington, 2015). In a blockchain, network users are unable to alter or manipulate the transaction records internally. Because blockchains are kept on numerous computers and transactions are secured by distinctive cryptographic signatures, a blockchain platform is very challenging, if not impossible, to attack from the outside (Crosby et al. 2016). Only simultaneous access to every computer in the network could compromise the blockchain platform.

Review of Literature

Since 2014, BC has also been used in the hospitality and tourism sectors with the aim of boosting stakeholder revenues and safety (Irannezhad and Mahadevan, 2020). Serving travellers is this industry sector's primary duty. High levels of labor-intensive competitiveness and complicated commercial linkages between its various actors, including airline companies, hotels, tour operators, travel agencies, insurance companies, governmental agencies, and service providers for payments, define its business ecosystem. (Treiblmaier and Önder, 2018). A new tourism business model known as "smart tourism" or "ambience intelligent tourism" or "etourism" has recently been introduced as a result of technological advancements (i.e., ICT, AI, smartphones, and mobile devices, etc.). These models pose some challenges, such as big data storage and its security (Buhalis, 2020; Wei et al., 2020; Yadav et al., 2021). Consequently, BC could help to address these drawbacks. Minimising stakeholder competition, enhancing customer services, and cutting expenses (Rashideh, 2020). Although the use of BC in the travel and hospitality sectors is still in its infancy, its significance is growing to the point that just in the first quarter of 2019 did blockchain-based travel businesses raise 15.4 million US dollars (Irannezhad and Mahadevan, 2020). In reality, both travellers and travel firms can benefit from this. For instance, the former can book a tour or engage with numerous currencies safely and easily utilising BC technology, whereas the latter can speak directly with service providers, cutting out middlemen (e.g., Airbnb, online travel agency – OTAs, platforms such as Tripadvisor and Booking.com, etc.). To yet, these subjects have not been the subject of a systematic literature review (SLR). In order to analyse the benefits and drawbacks of its use, it is crucial to investigate how BC technology is being applied in the tourism sector.

As with other industries the hospitality and tourism Industry is always in search of innovative solutions to help increase competitive advantage, elevate customer satisfaction, and improve bottom line performance. To this end, Blockchain can be strategically used within the accommodation, travel agent and food service sectors to achieve this goal (Williams, 2019).

In addition to Geneva, blockchain marketplaces for tourism 2.0 will debut in Dubai. The B2B framework of this marketplace will allow for connections between hotels and tour operators. Dubai wants to speed up the digitalization process and draw in new travel businesses. Similar to this, Kwok



and Koh (2018) have concentrated on the development of tourism by encouraging BCT adoption among tourism stakeholders in small island economies.

Using the example of Bitcoin, Figure 1 shows the fundamental and simplified structure of a blockchain. Each transaction in a list is given a hash function calculation, which results in a number of defined lengths that represents a single block and can be used to link blocks together in a chain. Next, the Merkle root, which is kept in the block header, combines all of the distinct hashes into a single hash. A notable characteristic of hash functions, of which there are many distinct varieties, is that even a small change in the underlying data results in a completely new hash value, making it simple to identify data changes. Along with the Merkle root, the block header includes data like a date and a nonce, or "number only used once," which blockchain miners are tasked with locating. Specialized computers called miners are used to verify transactions and add them to the network. The first miner to find a solution receives the opportunity to add a new block to the chain in exchange for some Bitcoin. Miners must test out multiple numbers in order to obtain a nonce that leads to a legitimate solution. By using this technique, it is made sure that the ability to add new information is only based on processing capacity and is not given by a centralised authority. The fact that the header of each subsequent block contains the hash from the preceding block's header is a key component of the blockchain since it establishes a data structure that cannot be changed without compromising the integrity of the whole chain after the modification (Treiblmaier, 2020).

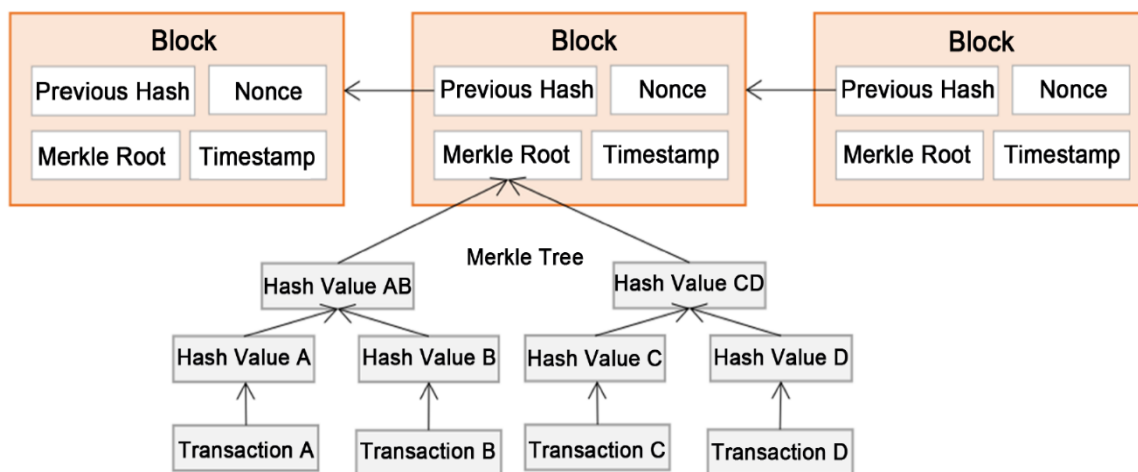


Figure 1. The blockchain structure

Source: Adopted from: (Bahga & Madisetti, 2016)

Studies have also shown that blockchain technology could solve certain common issues related to tourism. Using tourism 2.0, Pilkington and Crudu (2017) have investigated how blockchain might be used to reduce poverty in a troubled nation like Moldova. They have stated that trustworthy systems are necessary since Moldova has a high level of corruption. To find answers for their different issues, they investigate blockchain technologies for the public and private sectors. Finally, the authors argue that by eradicating Moldova's corruption issues, blockchain's irreversible nature might help reduce poverty through tourism 2.0.

The analysis by Seigneur (2018) is based on a blockchain application in the travel and tourism sector. In Geneva, the author presented a smart tourist strategy that is crypto-friendly. He has proposed that new



technologies like cryptocurrency and blockchain can be used to improve the tourism experience. Additionally, he has suggested that such integration will contribute to an increase in the overall wealth and income of the locals who offer tourism services.

Tyan, Yagüe, and Guevara-Plaza (2021) conducted research on blockchain technology with an emphasis on how it can help promote sustainable travel. The authors specifically look into how blockchain technology might affect tourism operations and the local economy, manage the food supply chain and reduce food waste, increase visitor happiness, influence visitors' sustainable behaviour, and deal with challenges related to awareness-raising. The authors draw a conclusion that blockchain technology has the potential to support the SDGs and the growth of sustainable tourism, and they suggest areas for future research.

Leung and Dickinger (2017) have analysed way European travellers pay for travel-related goods using Bitcoin as a cryptocurrency. A new level of encryption security and intervention-free functioning are provided by this payment method. In other words, the system's data handling cannot be altered in any way. The fact that no intermediary agents are used in the system's transaction realisation means that there are no additional transaction expenses. Online shopping and privacy issues have been covered by Brown et al. (2007). Their findings indicated that there is no link between the purchasing habits of tourists and privacy concerns, indicating that tourists who buy things online are not concerned about the protection of their personal information. Additionally, (Calvaresi et al., 2019) investigate trust, another crucial aspect of blockchain technology. Based on a thorough literature analysis, the authors compare trust in blockchain technology with trust in the travel and tourism sector.

Research Methodology

A technique for locating, selecting, analysing, and synthesising the pertinent papers on a certain subject is called a systematic review literature. Due to the repeatability of the SRL approach, which enables data synthesis and makes it possible to incorporate pre-existing information into the framework, outcomes are more consistent (Vrontis & Christofi, 2021). 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). To achieve this objective, a specific approach that guarantees research quality and guards against the loss of scientific data was used in this work. Science Direct, Scopus, and Web of Science were chosen among a number of academic research-supporting resources as the primary databases for the data used in this study.

Result and Conclusion

This research attempts to evaluate the existing body of information and identify the salient characteristics of blockchain technology. Using information from trustworthy sources including Scopus, Google Scholar, Web of Science, and other relevant sources, a complete regressive analysis of the available literature was carried out to accomplish the study's objective. Additionally, Blockchain's programmability is essential since it only permits a transaction to be successful when the underlying scriptable requirements are fulfilled. This programmability is based on the Blockchain's ability to store and execute smart contracts, which permit the use of more advanced, flexible, and fine-grained access control models to register and edit the items in the registry. In exchange for their information, customers receive a voucher they may use to book lodgings like hotels or vehicles. An irreversible reputation and rating system provided by a digital ledger may also be helpful for tourist sites since it prevents fraudulent accounts from erasing or changing review information.



The results of this study also show that blockchain technology can increase the level of disintermediation. However, this disintermediation must contain the following characteristics and benefits: immutability, security, transparency, privacy, and traceability. Keep in mind that blockchain is still a young technology, and that its standards and variants are continually being developed. Therefore, it may be argued that, at least until fresh breakthroughs are made, the recently developed blockchain technology is only practical for specific uses.

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