

Blockchain Technology and Internet of Value in the Hospitality and Tourism Industry

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Abstract

The purpose of this critical reflection is to investigate blockchain technology and its ability to unleash the Internet of Value (IoV) throughout the hospitality and travel sectors through the five realms of the emerging financial technologies and economies, which are cryptocurrencies, decentralized finance, metaverse, non-fungible token, central bank digital currency. Thus, in evolving electronic markets across the hospitality and tourism industry the blockchain technology could unleash the IoV. Nevertheless, certain challenges of blockchain technology such as its applications, privacy, legal frameworks, and environmental impact have to be discussed as all of these facets are critically important in order to optimize the benefits of cutting-edge technology. With the rising opportunities across the IoV, the hospitality and tourism businesses can improve and advance the hospitality and tourism operations by utilizing blockchain technology.

Keywords: Blockchain; Internet of Value; Cryptocurrencies; Decentralized finance; Metaverse; Non-fungible token; Central bank digital currency

Abbreviations: IoV: Internet of Value; IoI: Internet of Information; CBDC: Central Bank Digital Currencies; NFTs: Non-Fungible Tokens; DLT: Distributed Ledger Technology; B2B: Business to Business; P2P: Person-to-Person; PoW: Proof of Work; PoS: Proof of Stake; P2E: Play-to-Earn; 3D: Three-Dimensional; DeFi: Decentralized finance (DeFi)

Introduction

A technological breakthrough is a delicate time where a single design is applied to multiple use cases [1]. In the digital age, we are witnessing the developments of blockchain and distributed ledger technology, as the hospitality and tourism companies explore various use cases in order to apply blockchain technology. The main reason behind the embracement of blockchain technology in tourism is its ability to provide outstanding money transfers, which are effortless and direct [2]. Thus, blockchain technology serves as a stage that facilitates innovation of the Internet of Information (IoI) towards the Internet of Value (IoV) in today's asset driven hospitality and tourism businesses.

The IoV in the service and leisure sectors can be portrayed as an economic system of countless assets, which owns the commercial value for people. Hence, idea behind the IoV is to transfigure fabrics of quantitative values into a simplified structure that persist on blockchain [3]. More precisely, IoV is a digital nexus that permits a value transfer in the absence of governance [3]. Money is easily transferred within the IoV, which is similar to today's information movement, since blockchain technology removes intermediaries, which include financial institutions, bureaucracy, and various administrations, and it lowers payment fees, provides wide inclusion, and offers fidelity, privacy, and robust security [4].

In the hospitality and tourism sectors, the demands for payments are reciprocal to the increasing revenue, so the hospitality and tourism companies require seamless, interoperable, inclusive, certain, cost effective, and real time payments [5].

The blockchain technology holds specific features that can unlock the IoV across the hospitality and tourism sectors, because various hospitality and tourism companies, supporting businesses, worldwide destinations, and many other stakeholders can set up their own ecosystem that is tokenized, interoperable, which is within and outside the particular business silos, and trustworthy for all the participants [6]. Thus, the hospitality and tourism businesses are increasing their blockchain technology adoption in order to allure the emerging venture capitalists and streamline their networks [7]. Furthermore, blockchain technology enables business to lower their energy consumption and carbon footprints within the hospitality and tourism sector, capture the benefits of the central bank digital currencies (CBDC), extend the hospitality products and travel destinations into the metaverses, accelerate crypto transactions, offer valuable loyalty programs, and tap into the decentralized finance (DeFi) and tokenize physical assets, such as festivals, amusement parks, heritage sites, hotels, and resorts spaces in the form of non-fungible tokens (NFTs).

In 2017, the cryptocurrency market experienced exponential growth in value, which was followed by a rapid decline and consolidation up until the 2020/2021 bull run when the market cap for cryptocurrencies reached 2.8 trillion \$USD [8]. Scholars around the world are exploring the direction of digital currencies, which is a result of the shared trust concerning the use cases of cryptocurrency based on blockchain technology and their impact on financial technology and the evolving economic ecosystem. Hence, Mofokeng and Fatima [9] outlined that the tourism industry will experience a wide adoption of cryptocurrencies as payment systems in the years to come, because the benefits of these types of payment systems are appealing to the hospitality and tourism businesses.

Moreover, Mantas et al. [10] suggested that memorable touristic experiences could be tokenized on a platform that provides a personalized digital memento in a form of an NFT. This way various hospitality and tourism businesses can collaborate on a blockchain powered platform, because all the participants can co-create memorable touristic experiences using mobile technologies [10]. However, there are some skepticisms related to DeFi and its promises. Aramonte et al. [11] argued in particular that DeFi inherently poses certain centralization. They stated that absolute decentralization is an illusion, because a certain level of centralization is inevitable within the constitutional details of a system where this type of structure allows a small group of participants to form a concentration of power. Furthermore, this type of concentration of power within the elite participants could undermine the financial stability, because of higher debts than equity cause a mismatch between the market liquidity of assets and the funding liquidity of liabilities as well as the lack of shock absorbers [11]. Finally, Valeri and Baggio [12] outlined a gap in the tourism management literature with the recent critical reflection about the adoption of blockchain technology in the tourism industry. Furthermore, the previously authors have incited the need for further research in regard to the better understanding of blockchain technology applicability in the hospitality and tourism sector with special attention to the integrated systems for value creation, the improvements in financial technology and the potential economics, and the operational and social impacts [12].

As a result, the purpose of this paper is to investigate blockchain technology and its ability to unlock the IoV across the hospitality and tourism sectors via the five realms that are described in the following sections. Moreover, we hope that our conceptual framework will be useful for the decision makers in regard to the benefits of implementing new technology in the holiday industry, and we hope that our paper will serve as a forum for further discussions that generate subsequent research avenues.

Blockchain and Web 3.0 Implications in Hospitality and Tourism Industry

The hospitality and tourism industry are divided into various

sectors, such as flights, car rentals, resorts/hotels, tours, and various hospitality services. Each of these facets is prone to the heavy burden of operational expenses, long intermediation chains, overselling, and any human errors that lead to service delivery failures. As a result, blockchain is regarded a valuable technology to use in order to improve and advance the hospitality and travel experiences. Due to the decentralized nature of blockchain technology, the hospitality and tourism service providers and the end users are able to seamlessly interact, because the intermediaries are reduced.

The blockchain fundamental data composition is comprised of 1-megabyte files that are called blocks, which are tied into the chain through a complex mathematical proof. The inception of blockchain lies with the intelligent incorporation of the existing technologies for novel causes where cryptographic authorization, distributed computing, immutability, and validation play key roles [13,14]. All system rules for blockchain are known and enforced by all the participants through the validation process, because the validation removes the system administrative functions, enables the public state and public rules, and empowers the participants to enforce the rules [15]. Accordingly, blockchain offers the mediators a compelling advanced instrument, since it empowers the people and organizations with respect to mutual trust as well as to conduct peer-to-peer businesses. Furthermore, blockchain technology permits the establishment of a CBDC that is grounded on Distributed Ledger Technology (DLT) and the conventional central bank architecture, which is where tourism and hospitality businesses can access liquidity, rapidness, inexpensive, and more coherent payments with business to business (B2B), person-to-person (P2P), and cross-border transactions [16].

In 2008, Satoshi Nakamoto, which is the name that is being used by the supposed unidentified person or persons, created Bitcoin as a response to the 2008 financial crisis. Bitcoin was meant to serve as an improved version of the monetary system. Blockchain is seen analogously as the internet successfully distributes knowledge, which is due to disruptive technology that could decentralize financial transactions. Thus, Bitcoin was the first technology to arrive at this stage, so we are seeing today the diversification of blockchain for divergent use cases. Bitcoin is more precisely similar to Web 1.0, because they both mark the first stage of the fundamental beginning [17]. However, Web 1.0 is a set of static websites, whereas Bitcoin through its Proof of Work (PoW) algorithm failed as world currency, which is due to its high fees, high carbon footprint, and inability to handle contracts or trust agreements [18].

Nevertheless, Bitcoin has proven itself to be a robust store of value that is equivalent to digital gold. The second stage is similar to Web 2.0 as well as Ethereum and smart contracts. Web 2.0 introduced inventiveness, cooperation, and social distribution, whereas Ethereum through its Proof of Stake (PoS) algorithm manages digital assets without enforcing the platform ownership. Also, it offers agreements between parties on blockchain through

its smart contracts [17]. However, the Ethereum network has proven to be congested, and it carries high fees for the confirmation of executed transactions. The third stage is described with a rise of Web 3.0 and the proliferation of blockchain technologies, such as XRP Ledger [3]. Web 3.0 essentially empowers its users to engage in the control and performance of the protocols [18].

Thus, people can become contributors and shareholders as opposed to just pure consumers of products [17]. The XRP Ledger algorithm relies on Consensus Protocol in order to validate account balances and perform transactions [3]. The XRP

Ledger Consensus Protocol has proven to be superior because it offers a real time settlement system that is secure and scalable. Furthermore, blockchain technology enables the creation of a CBDC that is based on Distributed Ledger Technology (DLT) and the conventional central bank architecture, which is where tourism and hospitality businesses can access cash flow, velocity, affordable, and comprehensible payments with business to business (B2B), person-to-person (P2P), and cross-border transactions [19].

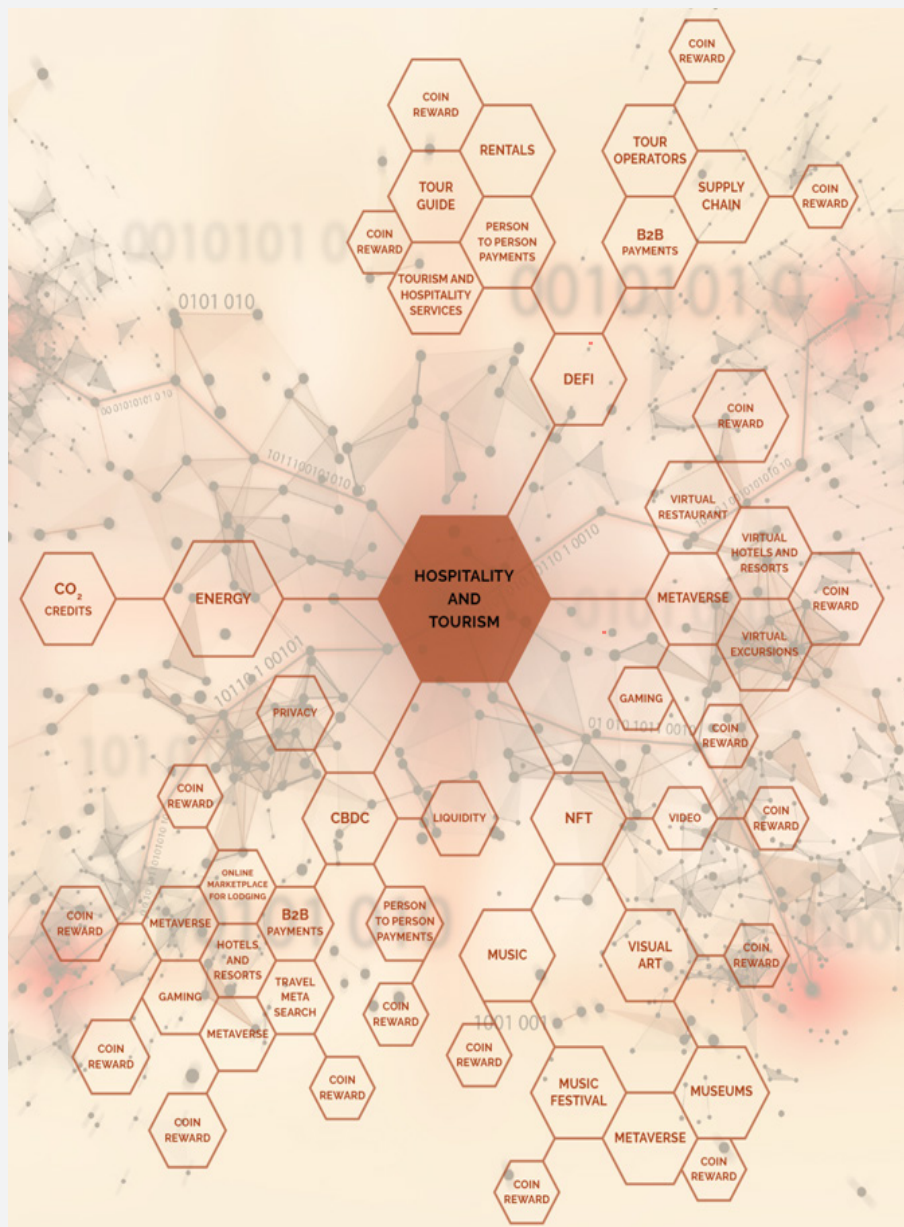


Figure 1: The Internet of Value across hospitality and tourism sectors.

Web 3.0 is set of protocols that can involve artificial intelligence with the genuine purpose of decentralizing control over the internet [17]. Thus, one can argue that the purpose of Web 3.0 is the liberation of the end users from the control of today's technological monsters that control the internet [3]. The decentralization of the internet is proliferating within the metamorphosis of Web 3.0, and the hospitality and tourism participants are offered peculiar and decentralized platform applications, which can be used anywhere without handing over a person's sensitive or personal data. For instance, using smart contracts for internet-based hospitality and tourism services completely avoid human intermediaries, so people can freely engage with each other without any approvals from the companies or governments.

Moreover, people who work for or manage hospitality and tourism businesses and who are not able to access the standard financial services for various reasons are now able to receive these types of services without permissions from banks or other financial service companies with DeFi. Web 3.0 is often accordingly seen as the structural synonym for the metaverse, because their essence is about constructing interactions and networks that use various digital and blockchain assets [18]. Thus, the end users' digital identity is entirely under their control, which allows them to choose what pieces of data they want to share or even sell for crypto, within the hospitality and tourism metaverse. Furthermore, Web 3.0 offers a cooperative governance structure in the hospitality and tourism sectors for the end users, because they can tokenize their tourist or travel experiences, dining or pub memes, private photos or videos, social media outputs, destination or hospitality services reviews, museums, festivals or concerts experiences, heritage sites tours, hotel and resorts experiences, conference participations, and many other hospitality and tourism products. However, in order to achieve the democratization of the access and ownership of wealth in the service and travel field, the holiday businesses and their end users cannot purely rely on technology, which is what is required for a change of the societal mindset that is accompanied by regulatory, monetary, and fiscal policies. Figure 1 is the graphical presentation of the blockchain ability to unlock the IoV in the hospitality and tourism industry.

Cryptocurrencies in The Hospitality and Tourism Industry

Cryptocurrencies are decentralized, encrypted, digital assets that are built on blockchain technology [20-23]. Cryptocurrencies can be interchanged globally, and they can serve as an alternative to the fiat currencies. In a recent critical discussion about blockchain technology and its implications to service and travel industry, Kizildag et al. [24] highlighted the urgent need for technological transformation within the hospitality and tourism sector, because the adoption of cryptocurrencies for various payments and loyalty rewards could provide many benefits.

Hence, we are witnessing today a growing number of hospitality services, such as restaurants and cafés, which are accepting various cryptocurrencies for payments [25]. Similarly, there is the robust mainstream adoption of the blockchain-based travel booking platforms. These blockchain-based travel booking platforms are a competitive alternative to the traditional booking methods as they offer transparent booking process without any hidden costs.

Furthermore, the hospitality and tourism businesses that are accepting cryptocurrencies for payments are also engaged in loyalty programs, which are providing real-value tokenized rewards that can be saved or spent for leisure and travel. Similarly, cryptocurrency payments in hospitality and tourism services offer cashback that can be kept for passive income, which makes the cryptocurrency user/holder a shareholder that is eligible for future travel benefits. Thus, the blockchain-based travel booking platforms can offer a long-term investment opportunity that also addresses the shared user experience concerns, such as multiple redirects and registrations that a user experiences when she/he books a single trip. Essentially, payments that are based on cryptocurrencies are fast and straightforward. Subsequently, it appears that the mainstream adoption of cryptocurrency payments in the hospitality and tourism industry are a direct result of the previous bull run in the crypto market, as such favorable conditions attract support from new investors.

Non-Fungible Tokens (NFTs) and Their Role in the Hospitality and Tourism Industry

NFTs are the tokens that are the most commonly used as digital proof-of-ownership of underlying assets. In the service and leisure industry, the NFTs fits as representations of various forms of digital art, or they can also be used for the tokenization of various hospitality and tourism assets from the hotels, resorts, restaurants, cafés memberships and cultural and heritage products [26]. Thus, this ecosystem makes them digitally tradable as every issued token represents a unique non-fungible asset. Moreover, small hospitality and tourism businesses can create context specific platforms that run on open access blockchain where the users can issue NFT's, which are used as collateral for loans. The utility of the NFTs can also be seen in gaming as various hotels/resorts, amusement parks, museums, and even cultural heritage sites can build games that combine the playing aspect with the economics and sustainability. These types of games are called Play-to-Earn (P2E), and in such games the users compete using NFTs, and their earnings are dedicated to the upkeep of various cultural heritage sites or to the development of the local societies where the hospitality and tourism services are based. Furthermore, the restaurants and cafés can sell their memberships in the form of NFTs, as the NFT owners can use tokens in order to gain access to culinary, cultural, and social experiences. Museums can also share their contents through various projects that can be

minted and offered for auction in the form of an NFT. Thus, the museum NFT owners can enjoy special privileges such as limited access to the peculiar museums' cultural and social experiences. The art and music festivals can also sell their tickets in the form of NFT for their showcases, exhibits, and live performances. Finally, all the aspects of hospitality and tourism management, which include purchases, leases, timesharing, prepaid leasing, and the licensing of property-based experiences can be placed on blockchain-powered platforms and tokenized using NFTs as a digital certification and reward solution.

The Metaverse as Extended Reality in the Hospitality and Tourism Industry

The metaverse is the concept of a three-dimensional (3D) universe that involves multiple different virtual spaces where the users persistently interact with each other in an online environment. The metaverse is seen as the future of the internet. However, the metaverse does not fully exist yet, and the video games are the closest to providing a metaverse experience [27]. In the hospitality and tourism industry, the metaverse is a virtual space that allows the users to work, meet, entertain, learn, create, play games, and socialize with each other. The hotels/resorts, amusement parks, museums, and cultural heritage sites can create a virtual reality platform powered by blockchain technology, on which end users can co-create and monetize their touristic experience using various hospitality contents and tourism applications. Furthermore, users can also purchase plots of various destinations, parts of hotels, resorts, and amusement parks. The metaverse also allows its users to create their own museums, music festivals, and even recreate cultural heritage sites that they can navigate, build upon, and monetize. Amusement parks, hotels, resorts, and national parks can build a simulated reality, which includes places where the visitors can enjoy via their mobile phones in order to initiate and extend individualized 3D impressions onto the close physical surroundings. The metaverse in the aforementioned cases permits incredibly immersive and realistic 3D virtual user experiences beyond the need for the users to use augmented reality viewing devices. In the hospitality and tourism metaverse, time-sharing real estate can use NFTs in order to make the touristic properties scarce as well as valuable. In this type of hospitality metaverse, the users can own part of the real estate that will increase in value as the demand for the space increases, which they can sell at that point. As nanotechnology gets more sophisticated and makes revolutionary progress with real-life use cases, people will be able to implant some type of brain-machine interfaces that would allow them to access the various metaverse platforms at a glance.

Decentralized Finance (DeFi) and its Potential in Hospitality and Tourism

DeFi is an open decentralized financial system powered by blockchain technology that provides transparency, to a great

extent control and the authority to its users. In hospitality and tourism sectors, DeFi takes out the intermediary, eliminates fees, charges, and any penalties [24]. The hospitality and tourism services, small tour operators, freelancer tour guides, privately owned rentals and participants in supply chain can engage in various DeFi projects that rely on smart contracts. By doing so, aforementioned entities can have direct access to the commercial use such as loan and cash flow beyond the need of a middleman. Within the DeFi financial system, everyone in hospitality and tourism services can access liquidity and earn fees on blockchain-based stablecoin exchange as issued tokens maximize rewards for its liquidity providers. Moreover, as property rentals, tour guides, and tour operators deposit tokens into the DeFi agreement, the tokens are consequently combined and loaned to borrowing rate participants. Subsequently, the accumulated interest is then divided proportionally to all consignors, who can earn quite attractive annual percentage yield.

Furthermore, DeFi is an expanding community of genuine, operating sets of rules, which are transmitting value to many hospitality and tourism service providers. Hence, if tour operators or property rentals are in need of a loan, they can access the DeFi platform as secured loans are depending on the assets that aforementioned hospitality business can boost their loan-to-deposit ratio and enhance business liquidity. Such loans might not be the greatest return on capital employed; however, it permits loans to be free from restrictions and spontaneous. Looking at P2P and B2B payments in hospitality and tourism sectors, DeFi protocols offer fiat-pegged tokens to strengthen price firmness of the international payments. Finally, DeFi protocols combine the price firmness and broad application of fiat currencies that enable affordable payments and fast cross-border settlements.

Central Bank Digital Currency (CBDC) and Financial Stability Implications in Hospitality and Tourism

A CBDC is a new form of digital money that is contrasting orthodox cash that is in circulation, deposits, and settlement accounts. Nevertheless, CBDC is fully backed to fiat currencies, and it is distributed and governed by trustworthy financial entities. The main purpose of a CBDC in the hospitality and tourism sectors is to regulate monetary and fiscal policies and accelerate the financial inclusion through blockchain technology [28]. Furthermore, the efficiency and reliability of a CBDC that is DTL and the central bank infrastructure offers various hospitality and tourism businesses fast and secure B2B, P2P, and financial transactions with precise detectability, accountability, and uniformity within the complicated, fallible, and slow payment systems in the service and travel sector. During a global crisis, such as the current COVID-19 pandemic, Liu et al. [29] outlined the utmost importance of government financial stimulus packages for the heavily affected hospitality industry and households. Thus, CBDC based on a DTL can boost liquidity and offer payments that

are cheap, fast, scalable, and reliable [30]. The demand for fast, 24/7, high fidelity, and real-time global payments in the travel and leisure industry are rising [31], accordingly, central banks with a CBDC can offer these types of services, as the ultimate goal is to move money smoothly and continuously like information on the internet. Furthermore, more and more restaurants, hotels, resorts, and other service and leisure businesses are extending into the crypto market, so it becomes clearer that the travel and leisure industry can gain from a CBDC. Thus, CBDC with their centralized system, are able to aid service and leisure businesses in the integration with traditional finance. Lastly, CBDCs are needed, as they can assist leisure businesses to bring the money into the crypto market (including gaming and the metaverse) from mainstream finance as well as providing them with an exit route in fast and reliable manner.

Energy consumption and carbon credits in the hospitality and tourism industry

Lowering energy consumption and carbon footprints as well as managing carbon credits are important aspects of the climate action goals that were set by the United Nations Sustainable Development. Hospitality and tourism businesses are engaging in various environmental initiatives in order to provide a green experience for their users with hopes that these types of practices can create robust and enduring partnerships [32]. Cash payments are a common method of settlement in the travel and leisure industry. In regard to the modern fiat money system, which include all bank deposits and cash that are used for payments, there is a great opportunity to lower the carbon footprint, because maintaining the modern fiat money system leaves a heavy carbon footprint. Hence, the hospitality and tourism businesses that use carbon neutral blockchains, such as XRP Ledger for their payments and cross border settlements are in position to create carbon credits, which would allow them to compensate for their other greenhouse gas emissions. Furthermore, blockchain technology can also offer a climate-based solution program, which could manage the reforestation operation and verify each planted tree. Blockchain technology possesses a robust and significant positive effect on energy consumption as well as carbon credits in the travel and tourism operations, accordingly, Sharma et al. [33] outlined eco-innovative practices that should be appropriately measured and included in the conceptual frameworks.

Discussion and Implications

The emergence of blockchain technology has generated a groundbreaking nexus that is revolutionizing the operations across a wide range of industries. This paper expands the body of knowledge by critically reviewing the function of blockchain technology and its capacity to unleash the IoV across the travel and leisure. This study reviews the implications of Web 3.0 in order to facilitate blockchain technology applications, and it delineates the potentials of the five domains, which include cryptocurrency,

NFT's, the metaverse, DeFi, and CBDC. Also, this paper discusses the prospects of the blockchain in the service and leisure industry, and it brings to the light the significance of novel technology in regard to environmental sustainability.

Blockchain technology holds promising potential in regard to transforming the hospitality and tourism business models. We are experiencing fundamental changes in the global economy where blockchain technology is reshaping the financial sector and e-commerce with the inception of the IoV as digital technologies advance [34]. Hence, the IoI is evolving under the influence of blockchain technology because various intermediaries are being removed from accumulation, transfers, and management of the value. The winds of changes are blowing towards the travel and tourism sectors with the novel technology potential to revolutionize the global economy. The IoV is gaining momentum in the service and leisure industry as the novel technology has the prospect to crumble silos so that value can circulate as effortlessly as information does [35].

Due to the powerful changes that are driven by the blockchain technology, it is particularly important to understand the IoV implications in regard to service and travel industry. Despite the fact that blockchain technology is an emerging technology and the IoV is not yet fully understood when it comes to the applications to the vacation industry, it is important to identify and address all the limitations at early stages so that the adoption of the IoV can be quickly embraced. Certain limitations in regard to the widespread of the IoV in the service and leisure industry are mostly related to the understanding of technical difficulties, like modularity, biodata, and technological parity. There are certain technical challenges, which are related to the security, that need to be addressed when considering application of the blockchain technology in service and travel industry. However, these security breaches are mostly affiliated to the user error as opposed to the fundamental technology. Therefore, delving into the consumer behaviors, sustainable growth, and regulatory frameworks are deemed necessary for the accomplishment of triumphant implementation of blockchain technology in the vacation industry.

Blockchain technology is creating a powerful and meaningful effect on hospitality and tourism businesses and societies because the IoV offers secured and direct exchanges of value, experiences, intellectual properties, and various other assets without the involvement of traditional intermediaries. With opportunities across the IoV, hotels/resorts, tour operators, restaurants, and any other hospitality and tourism businesses can solve their operational problems in P2P/B2B payments, cross border settlements, the metaverse interoperability, liquidity/finances, smart contracts, sales, carbon footprint and supply chain operations by utilizing blockchain technology. Thus, to obtain increased understanding of the novel technology and the IoV with its full implications across the hospitality and tourism sectors, more empirical studies in different domains of hospitality

and tourism are needed.

In addition to the lack of assets and the derivatives liquidity in the traditional markets there are great opportunities for DeFi provided the devastating impact of the COVID-19 pandemic on the global hospitality and tourism industry. Web 3.0 and the metaverse are expected to rise, so DeFi is gradually progressing in the hospitality and tourism sectors, where NFT marketplaces will witness an influx of users and growth. NFT has captured the hospitality and tourism businesses, as we are seeing a rise of P2E gaming, which is becoming a growing economic force. The NFT concept will subsequently evolve across the hospitality and tourism sectors in new ways as users and businesses are starting to see more value with having open interoperability between platforms. This change will be the cornerstone of more sustainable concepts, as staking and rewarding with cryptocurrencies will have an impactful role.

Finally, the central governments are rapidly exploring avenues for the implementation of a CBDC, because more and more businesses are adopting cryptocurrencies for payments. A CBDC can offer many benefits to the hospitality and tourism sectors, but it is important that the values of our society as well as user privacy and control are not abused by monetary policy manipulation. Thus, upcoming studies should address the impacts of a CBDC on social, political, philosophical, and legal aspects in the leisure and service sectors.

Despite the promising outlook of blockchain technology, insights into the role of blockchain technology and how it contributes to the IoV for the hospitality and tourism industry is largely under-explored in the literature [36], thus, an abundance of research agenda needs to be opened up. An inadequate understanding of issues that pertain to acceptance of blockchain technology inhibits the business uptake of the technology as well as operational innovation, which will inevitably result in a disadvantaged market position [37].

In order to transform blockchain technology into smart hospitality and tourism, the blockchains should be effectively incorporated into business models and managed in a way that the industry can reap the benefits of the IoV. In light of the promising opportunities for utilization of blockchain technology in the leisure operations, an understanding of how the various stakeholders' take on blockchain technology and its impact commercial activity and customer experience will provide evidence to the potential applications of blockchain, which will in turn heighten the IoV. As a result, we urge the hospitality and tourism technology scholars to conduct research that analyzes the viability of blockchain technologies that include cryptocurrency, non-fungible token, the metaverse, decentralized finance, and central bank digital currency, in the hospitality and tourism operations. Investigating the motivators and inhibitors of blockchain technology adoption

within the hospitality and tourism sectors will be a promising research opportunity.

Suggestions for Future Research

The information is essential for the promotion of IoV across the service and travel industry. However, the IoV across the leisure industry depends on the blockchain technology diffusion. Moreover, shedding light on the consequence of novel technology on the chain of distribution within the context of smart hospitality and tourism will be a fruitful research path. The knowledge should include specific, useful recommendations about how blockchain technology can improve efficiency with the hospitality and tourism operations. Advancing protocols using comprehensive analysis of blockchain technology situation are deemed necessary at some time in future in view to promoting the process of adoption. The points of view of the industry professionals, practitioners, decision makers, policy makers, and above all, consumers should be holistically pursued. Thus, opening the possibilities for the blockchain technology and the IoV to become everyday reality that could reshape the future of the leisure industry.

Blockchain holds the key to unleashing the IoV across the service and leisure sectors. However, in order to fully grasp the aforementioned potential of the IoV and its implications, robust frameworks, which are solidly grounded in theoretical logics, are needed. Thus, we call upon the scholars and practitioners to engage in this cutting-edge and promising research topic, because various studies about the IoV in the service and travel industry can provide new conceptual perspectives as well as enhance business practices.

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