

Perception of Hotel Staff Towards Blockchain Integration In Tourism and Hospitality Sector

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ABSTRACT

Tourism and hospitality sector is experiencing an unprecedented change with the integration of technology. Blockchain and blockchain-related applications are among these integrations. However, the views and opinions of tourism and hospitality sector participants are unknown. This study aims to investigate the perception of hotel staff towards blockchain integration in tourism and hospitality sector. For this purpose, a survey is designed as a data collection tool and implemented to 150 participants to test five hypotheses. The results are analysed with IBM SPSS package program. Based on the findings, it is seen that hotel staff have low knowledge about blockchain and they are unwilling for the implementation of the blockchain.

INTRODUCTION

In today's world, all sectors around the world are rapidly changing with the expansion of the internet and the technology. This change has reached an unprecedented speed in the last few decades. With the internet, businesses in different sectors are looking for new ways to integrate internet and internet-related technologies in their business. Therefore, increasing number of businesses are integrating internet solutions to their sectors. Tourism and hospitality sector is one of the fields that attempts to find new ways to integrate the technology. The sector is experiencing change in different ways. Zsarnoczky (2018:2) stated that in today's world, online and offline environments can be experienced together. This means, users are now interaction in the online world as much as they interact in the offline world. This opens new opportunities for implementers in the tourism and hospitality industry. Accordingly, businesses in the tourism and hospitality sector should consider online methods to enhance the offline experience in the sector.

Integration of technology to business can help various benefits. These benefits can be in terms of higher operation efficiencies, better time management or better customer services. World Economic Forum (2018:1) reported that technology can help businesses to accelerate their operations. When businesses in different sectors use technology, they can eliminate the slow human-based processes. For example, in tourism and hospitality industry, time consuming guest registration, check-in and check-out processes are almost fully automated. Automated processes can also contribute to saving time and money.

These technology integrations have been there in the sector for more than three decades. Martin and Martin (1997) proposed a method that enables wireless guest check-in when the guests have arrived at the hotel. In this proposed method, the guests would insert their credit card to a special device to complete the check in procedure. Furthermore, there is a more recent research and patent on using the wireless technology for check-in and check-out processes. Bröndrup (2008) proposed a mobile terminal design for different hotel operations such as check-in, check-out, booking, room access control and payment services. While the earliest designs and recommendations are mainly based on wireless communication, the technology integration landscape has significantly changed. This study aims to investigate how the hotel staff perceive and understand integrating the blockchain technology in the tourism and hospitality sector.

1. Technology Integration in Tourism and Hospitality Industry

The integration of technology is important in tourism and hospitality industry. With technology, all stakeholders in the sector can achieve broader opportunities. When the rapid development in the internet and technology integration in the tourism and hospitality industry are considered, new methods are proposed by different researchers. There has been different studied on investigating technology implementation in the tourism sector. Sharma et al. (2020:8) studies on an Indian sample to test whether there has been a digital marketing tool integration and found that 32% of the participants do not have a digital marketing tool integrated to their tourism marketing researchers. It can be clearly seen that there is insufficient technology integration even for a simple task such as marketing practices. These new propositions are shaped according to the changing landscape of the industry as well as the changes in consumer behaviour and habits. Accordingly, Pilkington (2017:3) suggested that blockchain can be a new technology integration in the tourism destinations. Blockchain and blockchain-related applications can entirely disrupt the tourism and hospitality industry and bring new implementations that could benefit to the hotel staff, guests and other shareholders.

By considering these developments in the tourism and hospitality industry, it is important to investigate the perception of the participants towards new technology integration and especially towards blockchain integration in the tourism and hospitality sector. The knowledge of the participants can play a critical role when adapting a new technology in a sector. Therefore, this study aims to investigate the perceptions of hotel staff towards blockchain application integration in the tourism and hospitality sector.

For this purpose, a survey was created to investigate the knowledge of the hotel staff about blockchain and blockchain-related applications and their view about how a blockchain application can benefit to their sector. The remaining sections of the article are structured as follows. The first section provides a general overview of the blockchain technology and blockchain applications in the tourism and hospitality industry. The second section describes the hypothesis of this study. The third section presents the data collection methods and data analysis. The fifth section presents the results obtained from the analysis of the collected data. Finally, the sixth section provides a discussion based on the findings and gives recommendations for the future studies in this field.

1.1. Blockchain Technology and Blockchain Applications in Tourism and Hospitality Industry

Blockchain technology has been a new technology with less than a decade ago. Therefore, there has been a limited knowledge on this technology and what it can offer in different sectors. Before exploring what blockchain technology can offer in the tourism and hospitality sector, it is important to understand the basic principles of this technology.

IBM (2020) provided a comprehensive definition for the blockchain technology and accordingly, this technology has three key properties such as distributed ledgers, record immutability and smart contracts between the peers. These three properties are the pillars of the blockchain technology and all blockchain-related applications are based on these pillars. Another key element of the blockchain technology is its decentralised structure. Traditional banking and finance sectors are centralised and these sectors are operated by mediators. Furthermore, each of these sectors require validation when a customer wants to make a transaction such as sending money, withdrawing money or making a payment to purchase a product. As expressed by Dogru, Mody and Leonardi (2018), the decentralised nature of the blockchain technology comes from the lack of validation needs. Thus, the resources for the validation process can be directed to the other channels of the service.

1.2. Issues Related to Blockchain Integration in Tourism and Hospitality Industry

One of the main attempts of the blockchain technology is to introduce an easier and safer way of payment. However, easier and safer payment by eliminating the traditional financing institutions might lead to certain problems. In case of blockchain, trust between the parties poses a great challenge. Schatsky, Arora and Dongre (2018) suggested that a consortium that organises the transactions between the participants peers could be a solution to the trust problem between the peers. In fact, smart contracts in the blockchain act as a type of consortium between the participating peers. Smart contracts and consortiums can help increasing the level of trust between the parties.

Another issue in terms of implementation of the blockchain technology is related to speed. Speed has always been the key priority of the financial transactions. Gao et al. (2003) suggested that transaction processing speed and latency are the key elements when testing and evaluating the performance of a payment system. In this term, the speed of a payment transaction plays an important role especially in terms of quality assurance.

Bank for International Settlements (2016) defined fast payment as real-time or almost real-time transaction processing from the paying party to the party who receives the payment. However, blockchain might not be in the position to meet these requirements. Schatsky, Arora and Dongre (2018) stated that one of the most important issues in the blockchain technology is related to the slow transaction speeds. Therefore, to evaluate the possible blockchain integrations in any sector, especially in the tourism and hospitality sector, these challenges must be evaluated carefully. Without carefully handling the challenges introduced by the blockchain technology in any sector, it is not possible to design and implement a viable system. In this process, all stakeholders in the tourism and hospitality industry should be included in the process to achieve the best possible system design.

When all of these implementations and issues are considered for blockchain application in the tourism and hospitality sector, it is important to understand how the hotel staff approach to this topic. Accordingly, this study will measure the general views of the hotel staff by applying a Likert-type survey consisting of questions related to the blockchain technology, blockchain implementations and issues in this sector. The participants were asked to choose one of the options provided in each question. The survey was designed in two sections which consisted of questions to reveal the demographic data of the participants and their perception towards the blockchain integration in the tourism and hospitality sector.

2. Overview of Tourism and Hospitality Sector

Tourism and hospitality sector have gone through enormous changes. As the world has become more globalised than ever, the habits of the tourists and travellers have changed significantly. The tourists and travellers of today are using more technology before, during and after their travels. Sharing tourism has become one of the most popular areas in the sector. Social media plays an important role in the sharing tourism. Tourists share their homes on applications such as Airbnb. However, this sharing comes with certain problems. Mittendorf (2016) explained that private property sharing with strangers and travellers has certain risks and complexities where trust is the main issue.

The participants of the sharing economy must trust each other as there is lower level of protection compared to the traditional accommodation services. Zsarnoczky (2018) expressed that internet has introduced online tourism agencies called OTAs where users can compare the prices for the travel services. This comparison empowered the users to benefit from the best bargain they can get for more affordable travel.

Information is an important asset for almost all sectors. When it comes to the tourism and hospitality sector, information becomes more important than ever. Buhalis et al. (2019: 485) stated that tourism and hospitality industry is a technology-dependent sector. In other words, the sector needs technology to operate and to offer services. Social media is one of the main mediums where information is generated and distributed. Therefore, another significant change in the tourism and hospitality industry is considered to be the introduction of social media. Social media has changed all sectors with the widespread use across countries.

These networks are popular around the world in almost every country. Statista (2019) reported that 4 billion unique mobile users are using mobile phones every day. All these 4 billion users can be regarded as a potential social media user who wants to share their touristic activities or who wants to participate in the touristic activities. Statista (2019) also reported that there are nearly 3 billion social media users around the world. While each of these users might have multiple accounts, the numbers are high.

The tourism and hospitality industry is trying to harness the power of social media. Wang, Park, and Fesenmaier (2012) and Lewis, Pea and Rosen (2010) stated that social media creates a new means to share the travel experience by other individuals in different places. This way, social media can be used as a new means of experience sharing which is an important aspect of the tourism industry. Additionally, Munar and Jacobsen (2014:50) stated that social media has an important and significant effect on destinations and tourism businesses. In this sense, these destinations and businesses must find new ways to use social media and other tools to reach more potential travellers.

As sharing economy gains importance and wider application area, it is necessary to understand the approach of tourism and hospitality sector workers towards these new applications. Since the workers in this sector will continue to serve the consumers, the changes in the sector should be understood to transform and shift the tourism and hospitality according to the recent developments.

3. Blockchain Applications in Tourism and Hospitality Sector

Tourism and hospitality sector has experienced various changes in terms of technology. Under current conditions, blockchain applications or Dapps are explored in this sector. The

number of scientific studies is limited in terms of blockchain applications in different sectors. In this sense, Dapps are considered as an undiscovered and promising field for research. Nam et al. (2019:7) stated that Dapps can act as a key element for smart tourism implementations as these applications are driven by mobile phones. As expressed above, the number of mobile phone and social media users are high which can increase the popularity of Dapps among these users. The number of Dapps in the tourism and hospitality industry are limited. One of the most widespread Dapp in this sector is called Locktrip. Locktrip (2020:1) positions itself as a booking service provider that collects zero commission from the travellers. While this blockchain application is similar to traditional travel agencies and OTAs, it claims to operate without charging commission for the bookings.

In addition to this application, as Rejeb and Rejeb (2019) stated that FAT which is a Taiwanese airline company, implemented payment with digital currencies to purchase flight tickets. While this is not a direct Dapp, it is an important implementation of blockchain in the tourism and hospitality sector. However, these applications and implementations also pose a challenge to the businesses in the tourism and hospitality sector. Schatsky, Arora and Dongre (2018) expressed that lack of blockchain, integration standards and interoperability issues can be a problem for the businesses. In this sense, it is important to address all possible implementation problems and issues on the business side to eliminate any negative impacts on the sector.

In addition to that, the problems and issues on the user side should be considered as well. Since users are the main implementers of any technology, it is important to understand how users think of blockchain technology and blockchain applications. For this reason, this study aims to uncover the knowledge and opinions of tourism and hospitality industry workers towards blockchain, cryptocurrencies and blockchain applications. This understanding can enable technology providers to handle the issues related to blockchain implementation more accurately and by considering the actual needs of the sector.

4. Method and Materials

4.1. Research Design

In the light of these trends, it is important to investigate how hotel staff view blockchain and blockchain-related applications. Understanding the perception of the hotel staff can help designing more suitable blockchain-related applications to address the need of the tourism and hospitality industry. Furthermore, the gaps in this area can be handled if the key and underlying problems in terms of technology and technology integration are understood. For this reason, this study aims to measure the blockchain and blockchain-related application knowledge of the hotel staff and how these hotel staff believe this technology can help their day-to-day tasks.

For this purpose, the study is designed as applying a survey on a specific sample group. Since the target segment is specific, the sampling method was selected among non-random sampling methods. This way, it is possible to ask the right questions to the right target audience. The survey was designed to test 5 hypotheses generated in line with the purpose of this study. Each of these hypotheses aim to measure one component and one perception of the hotel staff about blockchain technology. Accordingly, the following hypotheses were formed to be tested in this study:

- 1) Hotel staff has good level of knowledge about blockchain and blockchain-related applications.
- 2) Hotel staff has good level of knowledge about Bitcoin.
- 3) Hotel staff should have better knowledge about blockchain and blockchain-related applications.
- 4) Hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism and hospitality sector.

- 5) Hotel staff feel they know DApps usage in general and in the tourism and hospitality sector.

In the data collection process, the data to test these 5 hypotheses were collected by a survey. The survey questions were structured specifically to test each of these hypotheses.

4.2. Data Collection

This study aims to measure the views of the hotel staff in the tourism and hospitality industry. To comply with the purpose of this study, a survey is designed to be applied to the participants in the tourism and hospitality industry. For this purpose, purposive sampling method was selected. Tongco (2007:148) stated that purposive sampling which is a non-probabilistic sampling method can provide a sample consisting of experts in a certain domain. Since this study focuses on a specific group in the tourism and hospitality industry, purposive sampling is an adequate method to choose the participants.

A 5-point Likert type questionnaire was designed and applied to the voluntary participants. The survey was created and distributed online to reach higher audience in a shorter time. The survey consisted total of 4 sections and 28 items and participants were asked to score each item from 1-Completely Agree to 5-Completely Disagree. The first section of the survey was structured to collect the demographic information of the participants. The remaining three sections were designed to collect the views of hotel staff towards blockchain and blockchain-related applications in general and in the tourism and hospitality sector. Before applying the survey to participants and before data collection process, the survey was sent for an expert view. Necessary changes were made after the expert view and the survey was shaped in its final form. The final form of the survey was applied to all participants.

The data was collected to test hotel staff has good level of knowledge about blockchain and blockchain-related applications, hotel staff has good level of knowledge about Bitcoin, hotel staff should have better knowledge about blockchain and blockchain-related applications, hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism and hospitality sector, hotel staff feel they know DApps usage in general and in the tourism and hospitality sector, hotel staff have a positive view about implementing blockchain-related applications in their hotel as well as in their sector, blockchain can contribute to having lower workload and better payment when it is implemented in the tourism and hospitality industry and blockchain can contribute to increased customer satisfaction when it is implemented in the tourism and hospitality industry hypothesis. While some of the collected data are directly related to the five hypothesis of this study, other questions aim to support the findings related to these five hypotheses.

4.3. Data Analysis

The survey create to test hotel staff has good level of knowledge about blockchain and blockchain-related applications, hotel staff has good level of knowledge about Bitcoin, hotel staff should have better knowledge about blockchain and blockchain-related applications, hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism and hospitality sector, hotel staff feel they know DApps usage in general and in the tourism and hospitality sector, hotel staff have a positive view about implementing blockchain-related applications in their hotel as well as in their sector, blockchain can contribute to having lower workload and better payment when it is implemented in the tourism and hospitality industry and blockchain can contribute to increased customer satisfaction when it is implemented in the tourism and hospitality industry hypothesis to measure the perspectives of hotel staff in the tourism and accommodating industry towards blockchain technology and blockchain applications was applied to 150 participants working in different positions in the tourism and hospitality industry. All participants were volunteers. The four sections of the survey were distributed at the same time and participants were asked to answer all items on the four sections. The answers for the survey were collected online. The entire data collection process took 1 month. When the survey was distributed to the participants, a short instruction explaining the purpose of the study was distributed as well. This way, any errors in the survey answering process has been prevented. The data

analysis has been started. After all the surveys were returned, the data was analysed with IBM SPSS version 26 package program.

5. Findings

This section presents the findings of this study obtained by analysing the collected data. First, demographic information regarding the hotel is presented. Later, the survey results are presented respectively. The results for hotel staff has good level of knowledge about blockchain and blockchain-related applications, hotel staff has good level of knowledge about Bitcoin, hotel staff should have better knowledge about blockchain and blockchain-related applications, hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism and hospitality sector, hotel staff feel they know DApps usage in general and in the tourism and hospitality sector, hotel staff have a positive view about implementing blockchain-related applications in their hotel as well as in their sector, blockchain can contribute to having lower workload and better payment when it is implemented in the tourism and hospitality industry and blockchain can contribute to increased customer satisfaction when it is implemented in the tourism and hospitality industry hypothesis were tested and presented in this section.

Table 1: The Distribution of The Hotel Staff According to Position (%)

	Position
Hotel manager	33.3
Hotel director	26.7
General hotel staff	20.7
Other personnel	19.3

The demographic properties of the hotel staff and their hotel were obtained as follow. According to Table 1., it was seen that the 33.3% of the hotel staff were hotel manager, 26.7% were hotel directors, 20.7% were general hotel staff 19.3% were the other personnel working in the hotel.

Table 2: The Distribution of The Hotel Staff According to Geographic Region (%)

	Geographic region
Mediterranean	34.7
Aegean	24.7
Black Sea	15.3
Other	13.3

When the regions of the hotels are considered, Table 2 shows that 34.7% were in the Mediterranean region, 24.7% were in the Aegean region, 15.3 were in the Black Sea region, 13.3% were in other regions (such as Central Anatolia, Southeast Anatolia, East Anatolia) and 12.2% were in Marmara region.

Table 3: The Distribution of The Hotel Staff According to Experience (%)

	Experience
Less than 1 year	32
1-5 years	37.3
5-10 years	18
More than 10 years	12.7

In terms of experience, Table 3 shows that 37.3% worked between 1-5 years, 32.0% worked less than 1 year, 12.7% worked more than 10 years and 18.0% worked between 5-10 years. Accordingly, the general experience of the hotel staff in their current hotel can be considered as low.

Table 4: The Distribution of The Hotel Staff According to Experience in Hospitality Sector (%)

	Experience
Less than 1 year	16.7
1-5 years	30.7
5-10 years	32
More than 10 years	20

When the data obtained from the survey is considered, it can be seen that more than half of the hotel staff has less than 5 years of experience in their hotel. In addition to the experience of the hotel staff in their current hotel, the experience of the hotel staff in the tourism and hospitality industry was considered. Table 4 shows that, 32% had 5-10 years of experience in the tourism and hospitality sector, 30.7% had 1-5 years of experience in the sector, 20% had more than 10 years of experience in the sector and 16.7% had less than 1 years of experience in the sector. In this sense, the experience of the hotel staff in the tourism and hospitality industry in general is higher than their experience in a single hotel. Based on this data, it could be suggested that the hotel staff has a general knowledge about the problems, innovations and initiatives in the tourism and hospitality sector.

Table 5: Knowledge About Blockchain (%)

	Blockchain knowledge
No	67.3
Yes	30.7

When the blockchain knowledge of the participants were asked, total of 67.3% said that they have not heard about the blockchain technology before. 30.7% of the participants stated that they heard about this technology from different sources. In addition to blockchain knowledge, the knowledge of the participants on Bitcoin was asked as well. Compared to the blockchain technology, Bitcoin is a more popular topic around the world. This cryptocurrency has some coverage on the mass media organs. Therefore, it was believed that participants had better knowledge about Bitcoin compared to the blockchain technology. Majority of the hotel staff (89.3%) said that they have heard about Bitcoin. Only 10.7% had no idea about Bitcoin. When the blockchain and Bitcoin knowledge were compared, it is clear that participants have better knowledge about Bitcoin. This data can be an important insight to plan blockchain-related implementations in the tourism and hospitality industry.

Table 6: Knowledge About Digital Wallet (%)

	Digital wallet
Never heard	71.4
Heard and used	17.4
Heard but not used	11.2

Participants' views on digital wallets have been investigated to understand the level of technology knowledge of the hotel staff. According to Table 6, 71.4% of the participants had no knowledge about the digital wallets where only 17.4% of the participants have heard about the digital wallets. Yet, 11.2% stated that they have heard what it is but they don't have any idea about what it looks like or how it is used. Digital wallets are an integral part of blockchain applications. Therefore, lack of knowledge about these wallets might prevent the hotel staff to adopt blockchain in their daily use. Dapps which are connected with digital wallets are also unknown to the hotel staff.

The results have revealed that that 76.7% of the hotel staff had no knowledge about any DApps in different sectors. This number is at 79.4% level for the tourism and hospitality sector. It can be clearly seen that participants of the tourism and hospitality industry has no knowledge about the Dapps in general. In terms of Dapps, 88.7% state that they don't know how to find and learn more about Dapps. This might indicate the low level of Dapp knowledge in general. As individuals do not know the ways to collect information about a technology or an application, they experience limited exposure to this technology. In return,

their knowledge is at low level. Furthermore, the results have indicated that 70.7% of the participants do not have sufficient motivation to learn more about Dapps or to implement Dapps in the tourism and hospitality industry.

Table 7: Blockchain Integration Perception (%)

	Blockchain integration
Positive	23.3
Neutral	70.7
Negative	6

The willingness of participants towards blockchain integration has been asked in the survey. The results in Table 7 showed that the 70.7% of the hotel staff are neutral about the blockchain integration in tourism and hospitality sector. 23.3% believed that such integration can be realised in the sector. On the other hand, 6% believed that blockchain can never be fully-implemented in the tourism sector. When the benefits of possible blockchain and Dapp integration in the tourism and hospitality industry was asked, 72% believed that there will be no difference in terms of workload; 73.3% believe that there will be no difference in terms of payment. On the other hand, 73.3.% were neutral about increasing the customer satisfaction by implementing this technology to the sector.

The findings of this study that aimed to understand the views of tourism and hospitality sector participants in terms of blockchain an blockchain applications are discussed in the following section and recommendations for the future studies are provided to guide the research in this area.

CONCLUSION AND RECOMMENDATIONS

The literature on blockchain and blockchain applications in the tourism and hospitality industry are limited. Due to this reason, this study aims to investigate the position of the blockchain and blockchain-related applications in the tourism and hospitality industry by analysing the views and perceptions of the hotel staff towards such applications. This study have tested for hotel staff has good level of knowledge about blockchain and blockchain-related applications, hotel staff has good level of knowledge about Bitcoin, hotel staff should have better knowledge about blockchain and blockchain-related applications, hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism and hospitality sector, hotel staff feel they know DApps usage in general and in the tourism and hospitality sector, hotel staff have a positive view about implementing blockchain-related applications in their hotel as well as in their sector, blockchain can contribute to having lower workload and better payment when it is implemented in the tourism and hospitality industry and blockchain can contribute to increased customer satisfaction when it is implemented in the tourism and hospitality industry hypothesis and presented the findings related to these hypothesis. This section offers the discussion for the finding and recommendations for the future studies.

The tourism and hospitality industry has been experiencing a change in the last decades. One of the main reasons for this change is due to sharing economy. The sharing economy has brought new implementations in different sectors. Zsarnoczky (2018) expressed that with the introduction of the sharing economy, individuals are using goods and services collectively and offer the excess goods and services to other participants. In the digital world, this sharing behaviour has become easier as internet enables consumers to interact in easier way. It is believed that as sharing economy gains more importance across the tourism and hospitality industry, participants of this sector will be more involved with related technologies which also includes the blockchain technology. The findings of this study revealed that hotel staff had low level of knowledge about the blockchain technology. This low knowledge level might lead to certain problems in the possible implementation process.

One of the main issues in the blockchain implementation is related to trust. As expressed above, trust forms one of the main components of the blockchain technology. Without trust between the parties, it is not possible to create a working blockchain. Trust can be built

between the parties when each party has an adequate level of knowledge on a certain topic. Önder and Treiblmaier (2018) explained that trust between the parties is an important element as the parties transfer their money across the borders. However, the findings of our study showed that the knowledge level of hotel staff in blockchain, digital wallets and Dapps is at low level. This might lead to some serious trust issues between the parties who are participating in the blockchain by using the Dapps. On the other hand, the knowledge level of the participants of this study about Bitcoin was found at high level. There might be couple of reasons for high level of Bitcoin knowledge. This might indicate that participants fail to link the cryptocurrencies and blockchain technology. In this sense, future studies can attempt to explore whether hotel staff can understand the connection between blockchain technology and cryptocurrencies.

There have been various technologic implementations in the tourism and hospitality industry. With the introduction of the internet in the tourism and hospitality sector, the general landscape of the industry has change dramatically. Increasing number and variety of technologies are being implemented in this sector. Buhalis et al. (2019: 486) identified seven key technological advancements which were mobile devices and wearables, 5th gen mobile network, artificial intelligence, radio frequency, applications (APIs) and cryptocurrency and blockchain. It is clear that there has been a significant advancement in terms of tourism. However, our study results revealed that hotel staff have limited knowledge about blockchain related technologies and participants are not willing to learn more about these technologies especially about Dapps.

The low level of willingness might bring some problems. In the digital age, every sector experiences transformation. Digital transformation has become the buzz world for many industries. Without sufficient level of digital transformation, businesses fail to adapt to changing conditions. When the major participants in a sector – in our case hotel staff in tourism and hospitality industry – fails to show interest towards change, that sector might be left behind in the transformation process. Therefore, it is important to understand the reasons for lack of willingness to learn blockchain technologies among the hotel staff. This is a potential research area for the future studies.

The results of this study indicated that participants have a high level of knowledge about Bitcoin. This might be due to a larger media coverage of Bitcoin compared to blockchain. Tran (2019:1), Turkey announced a blockchain strategy in its Strategy 2023 program. The document stated that *“Blockchain, which became popular with virtual currencies like Bitcoin, delivers a distributed communication infrastructure to provide trust between parties on transactions without the need for a central authority. This feature enables many different use cases that address transparency and reliability issues, from smart contracts to supply chains. Because it removes any intermediaries, blockchain technology builds new business models that will shape the future”*. It can be seen that the news state that blockchain has become popular after the introduction of Bitcoin. This might be one of the main reasons for low level of blockchain knowledge but high level of Bitcoin knowledge in our study.

In addition to this coverage, larger mainstream media organisations such as Hürriyet newspaper and CNNTurk are including news about Bitcoin. CNNTurk lists the latest Bitcoin news on its website while there is almost no news about the blockchain technology or blockchain applications. The majority of the news are related to the price of Bitcoin or other financial gains that can be earned by investing in Bitcoin. In line with this news, it is believed that the high level of Bitcoin knowledge among the participants are caused by the higher exposure in the mass media. This is an important area that can be investigated in the future studies. Future studies can explore where the participants have gained their Bitcoin knowledge. This way, the knowledge about the Bitcoin can be utilised to increase the awareness of the participants in Dapps applications in the tourism and industry sector.

When the hotel staff has good level of knowledge about blockchain and blockchain-related applications, hotel staff has good level of knowledge about Bitcoin, hotel staff should have better knowledge about blockchain and blockchain-related applications, hotel staff feel excited about blockchain and blockchain-related application implementation in the tourism

and hospitality sector, hotel staff feel they know DApps usage in general and in the tourism and hospitality sector, hotel staff have a positive view about implementing blockchain-related applications in their hotel as well as in their sector, blockchain can contribute to having lower workload and better payment when it is implemented in the tourism and hospitality industry and blockchain can contribute to increased customer satisfaction when it is implemented in the tourism and hospitality industry hypothesis are considered, only one hypothesis was validated. The hotel staff has good level of knowledge about Bitcoin hypothesis was validated as the majority of the participants had stated that they had good knowledge about Bitcoin.

On the other hand, the participants had low level of knowledge about blockchain, they had almost no knowledge about Dapps in general and in the tourism and hospitality industry, they are not willing to learn more about Dapps or how to find these Dapps, they believed blockchain will not contribute to their wage or to decrease the workload and they were neutral about the relationship between the customer satisfaction and the blockchain. In this sense, it can be stated that there is need for more efforts in the tourism and hospitality industry to increase the awareness towards blockchain. When the general demographic properties were considered, majority of the hotel staff that participated in this study had manager roles. In this sense, training programs for these managers could be a good start to adopt a top to bottom approach.

While there are limited number of studies investigating blockchain applications in the tourism and hospitality sector, it is believed that this study will provide important insight both for the theoretical studies and for the practical implementations. Researchers can build on the findings of this study to expand the field in this direction. This study has certain limitations. First and most important, the number of the study universe is relatively low. Future studies might include more participants for a broader analysis. In addition to that, future studies might adopt a comparative approach to try to understand the views of participants in different touristic destinations.

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