

Miloš Zrnić MSc, PhD candidate

Academy of Applied Studies Belgrade, The College of Hotel Management, Belgrade, Serbia

Angelina Njeguš, PhD

Singidunum University, Belgrade, Serbia

Ivana Brdar, PhD

Singidunum University, Belgrade, Serbia

Jelena Košutić, MSc

Symphony, Belgrade, Serbia

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CHALLENGES AND USAGE OF CRYPTOCURRENCIES IN TOURISM

IZAZOVI I PRIMENA KRIPTOVALUTA U TURIZMU

Apstrakt: Predmet ovog istraživanja su izazovi i primena kriptovaluta u turizmu, sa fokusom na Republiku Srbiju. U radu će biti prikazano ispitivanje stavova i mišljenja ispitanika na turističkom tržištu Republike Srbije o kriptovalutama i njihovoj spremnosti da ih prihvate u svom radu, biznisu i putovanju. Metode koje su korišćene u radu: hipotetičko-deduktivna, strukturirana (zatvorenog tipa) pitanja, dihotomna pitanja sa jednim izborom; nominalne i intervalne merne skale. Istraživanje bi trebalo da doprinese boljem razumevanju funkcionisanja digitalnih valuta u turističkom sektoru i bližem razumevanju izazova i izgleda za njihovu primenu.

Cljučne reči: kriptovalute, bitcoin, turizam, blokčejn, Srbija.

Introduction

The precursor to today's cryptocurrencies was the electronic money of DigiCash Corporation, designed by Chaum, which

Abstract: The subject of this research are challenges in the application of cryptocurrencies in tourism, with focus on the Republic of Serbia. The paper will present examination of the attitudes and opinions of the respondents in the tourist market of the Republic of Serbia about cryptocurrencies and their willingness to accept them in their work, business and travel. The methods used in the research are: hypothetical-deductive, structured (closed type) questions, dichotomic single choice questions; both nominal and interval measurement scales. Research should contribute to a better understanding of the functioning of digital currencies in the tourism sector and a closer understanding of the challenges and prospects for their application.

Keywords: cryptocurrencies, bitcoin, tourism, blockchain, Serbia.

enabled anonymous online transactions, thanks to cryptographic protocols (Chaum, 1982; Tapscott & Tapscott, 2016). The first and most famous cryptocurrency is bitcoin, which for many is synonymous with the

cryptocurrency. The fact is, however, that it is the most famous but certainly not the only digital currency – there are more than 1,000 of them. So, bitcoin is accompanied by ripple, ethereum, cardano, lightcoin, monero, and many more. Their value changes from time to time. According to Bonneau et al. (2015) first bitcoin transaction is thought to have been realized in May 2010, when one user ordered pizza delivery for another in exchange for 10,000 bitcoins. Developer (or group of developers) named Satoshi Nakamoto, created the world's first bitcoin and designed the world's first blockchain database (Hileman & Rauchs, 2017). Today, there are 17 million bitcoins worldwide, and the offer is limited to 21 million, although according to many cryptocurrency traders, that number is arbitrary. „Mining“ is a term that is very widespread when it comes to the most popular cryptocurrency. So-called „miners“ use special software to solve mathematical problems, and for that they get a certain number of bitcoins in-exchange. According to Chen and Kuo (2015) if there are no new bitcoins as rewards for miners, the system is unlikely to continue working.

Literature review

Blockchain technology is a financial book that shows us realized cryptocurrency transactions. It's a series of blocks that contain data on all transactions. Transactions with digital currencies in tourism emerged in 2013 when agencies began accepting the same as the means of booking and paying for air flights, hotel rooms and other services (Chuen et al., 2017). During 2017, tourism and hotel industry became a leader in terms of investments in blockchain technology, and the forecast speaks of the growth of the mentioned phenomenon in the future (Nuryyev et al., 2020). Transactions with cryptocurrencies in tourism are played daily and tracked through a blockchain, in the general ledger. As sharing their private experience

while traveling (photos, videos, etc.) tourist also share their experience with money transactions/payments (Marić et al., 2021). Blockchain technology and crypto currencies can greatly facilitate travel market and make the entire tourist experience more enjoyable (Önder & Treiblmaier, 2018). Excessive costs are an undesirable item for any travel company but also tourists, and could be cut if modern blockchain technology is implemented and used, resulting in more efficient and efficient work by employees.

Globally, tourism and hotel operators have many intermediaries who take a certain monetary percentage for their services, and the question is how long this situation will last, given that all participants in the tourist market are looking for ways to reduce costs, avoid mistakes and increase productivity (Lielacher, 2018). Tourism industry may have more intermediaries than any other service sector and blockchain technology is likely to significantly disrupt the way suppliers and intermediaries do business (Rose, 2016; Živković i Brdar, 2018). Blockchain technology can have a very positive impact on tourism and hotel management in overcoming challenging situations for both tourists and catering facilities, such as overbooking, thefts, food security, etc.

According to Dogra et al. (2018) blockchain could enable better quality control, food safety and ensure that certain products are found simply and quickly at any time, which would help reduce food waste. This way, contaminated products can be easily and quickly detected, while safe food is kept on shelves and not sent to landfills. According to Matanović (2016) Serbia has no history of a strong banking sector, and as a result of hyperinflation and non-payment of banks during the 1990s, our population feels much more comfortable using cash than residents of other countries. Furthermore, Yussof et al. (2018) claims that the main challenges for cryptocurrencies in most countries around

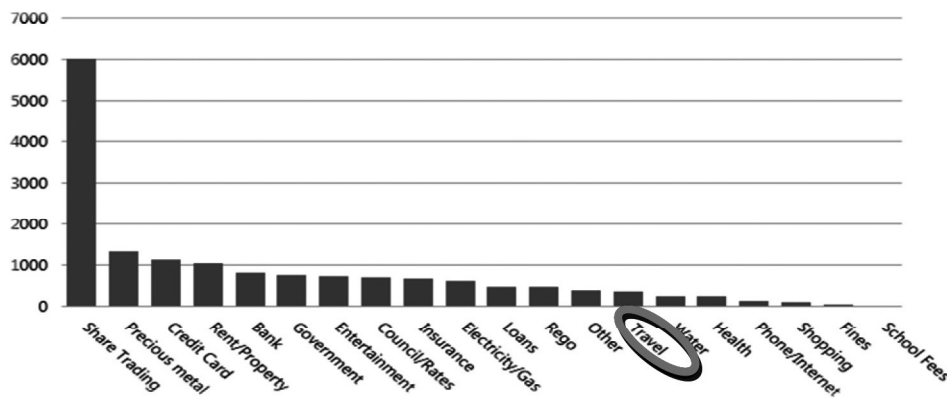
in the world are (Zhang, 2020; Tasatanattakool & Techapanupreeda, 2018):

1. Legal regulations
2. Lack of financial education
3. Instability
4. Fraud
5. Consumer protection

The legislation that should define and regulate the area of cryptocurrencies and their place in payment systems is different in countries around the world (Kyrmizoglou & Daoultzoglou, 2019). This is not the only

challenge in their use – countries do not even have a unique position on whether cryptocurrencies are legal means of payment (Liu & Tsyvinski, 2021). While on the one hand, in countries such as Morocco, Bolivia, Ecuador and Bangladesh, digital currency use is prohibited by law in Japan and Australia, legal means of payment are treated as property. Additionally, in June 2021, stock trading dominated, while on a smaller scale cryptocurrency were also used to make payments in the context of travel (Chart 1.)

Chart 1: Accounts paid for by cryptocurrencies globally, on average, in June 2021.



Source: <https://www.livingroomofsatoshi.com/graphs>

The lack of financial and digital education is another challenge to the application of cryptocurrencies in all sectors, including tourism and hotel management, globally. When it comes to the Republic of Serbia, this need has been recognized by the Association of Banks of Serbia, which pays special attention to financial education as part of efforts to modernize the entire banking sector.

According to Zuraba Pololikashvili, UNWTO (World Tourism Organization) Secretary General, the organization is increasingly focusing its events on digital skills, jobs of the future and the role of innovation in the preservation of natural and cultural heritage (Matheus, 2019).

Instability is another feature of cryptocurrencies. Since they emerged, their value has fluctuating – it grows dizzyingly, then declines and it is very difficult to predict further movements, i.e., possible value. This is supported by the fact that bitcoin reached a record value of over 19,000 dollars in December 2017, and in 2018 its value dropped dramatically and at the beginning of 2019 it was at the level of 3,000 dollars.

When it comes to cryptocurrency scams, among the most famous is a scam carried out by Rose Ignatova, a „crypto-queen“ who claimed to have invented the new cryptocurrency OneCoin and managed to persuade people around the world to invest millions of dollars in it. In addition to scams aimed

primarily at populations with insufficient knowledge of cryptocurrencies, hacking attacks have been reported in the past few years, whose victims were cryptocurrency owners.

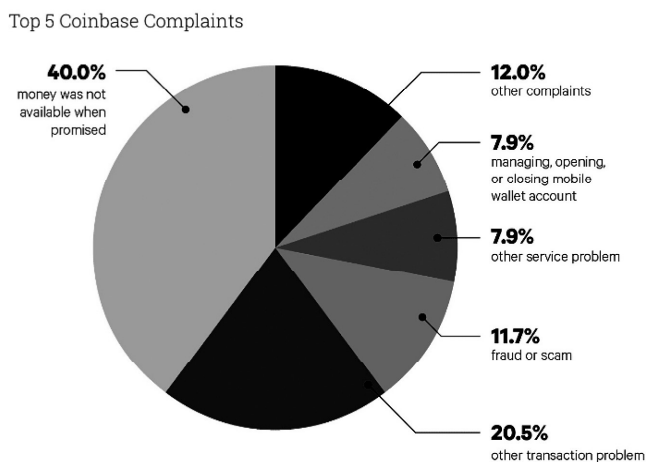
According to Zou and Rezaeighaleh (2019) as blockchain and cryptocurrencies become increasingly popular and practical for use in a variety of areas, from coffee purchases to the transfer of vehicle ownership, they are also becoming an increasingly attractive target for hackers.

Authors Corbett et al. (2019) states that hacking events increase the volatility of the price of the targeted cryptocurrency and affect correlations with other cryptocurrencies. Data from the previous years show that in the first three months of 2019 alone, thefts of cryptocurrencies reached the amount of

1.2 billion dollars, while for the whole of 2018 they amounted to a total of 1.7 billion dollars (Su, 2019).

According to Klein (2019) confidence in the tourism industry is built on the expression „I don't believe until I see“. Consumers/service users expect more from good products and a positive experience – they want to feel that the company is making a positive difference in the world, taking care of the environment, contributing to the community and treating employees well. Survey conducted by Value Penguin, the number of complaints received by the U.S. Consumer Financial Protection Bureau (CFPB) regarding the leading digital exchange, Coinbase, has risen significantly in early 2018. Complaints and their percentage representation are shown in Chart 2.

Chart 2. Cryptocurrency users' complaints about Coinbase – 2018



Source: <https://bravenewcoin.com>

While the issue of consumer protection in the US deals with the aforementioned Consumer Protection Bureau, the Australian Competition and Consumer Commission (ACCC) is responsible for regulating fair trade in the UK, there is a Financial Services Compensation Scheme (FSCS), which aims to protect consumers from losses of up to

£50,000 in the event of an authorized financial company being liquidation.

Materials and methods

The research method used in research is a hypothetical-deductive method, while data collection was conducted by analyzing

primary and secondary sources, as well as by surveying the sequence of questions displayed through the questionnaire. The questions are structured (closed type), dichotomic and single choice questions; both nominal and interval measurement scales were used. Research within the challenges and perspectives of the application of cryptocurrencies in tourism and hotel industry focuses on the views and opinions of respondents towards usage of cryptocurrencies for traveling purpose. In our research, an online survey method was used. Data collection was realized in the period 15.06–11.07.2021. The sample study consists of 132 adult respondents, aged 18 to 60, with residence on the territory of the Republic of Serbia. Basic research hypothesis:

H1: The majority of citizens of the Republic of Serbia in the light of 132 adult respondents, between 18–60 years old have a positive attitude towards catering facilities that accept cryptocurrencies.

Auxiliary research hypothesis:

H2: The younger population of 18–30 years is more willing to accept cryptocurrencies

as a regular means of payment than other age groups.

H3: Respondents have a more positive attitude towards cryptocurrency use than other categories surveyed.

H4: Respondents in survey (132), engaged in tourism show more positive attitude towards the use of cryptocurrencies compared to other groups.

H5: Man have more interest in leadership, knowledge of blockchain technology in cryptocurrencies than women.

The percentage of respondents in the survey shows the male population's numerical dominance (62%) compared to the female population (38%). The age structure of respondents indicates that the percentage of respondents (42%) belong to the 18–30 age group versus the rest of respondents between 31–60. In our study, we observe the numerical dominance of the working population 57% within the other categories of respondents, students 27%, unemployed 5%, entrepreneur 11%. Demographic data are shown in Table 1.

Table 1. Demographic data of the respondents

Gender	Frequency	Percentage
Man	82	62%
Female	50	38%
Age		
18–30	56	42%
31–60	77	58%
Employment status		
Students	36	27%
Employed	75	57%
Unemployed	7	5%
Entrepreneur	14	11%

Source: Author's calculation

In addition to demographic data (Table 1), a set of questions was used during the research, questioning the views and opinions of

citizens of the Republic of Serbia about acceptance of cryptocurrencies in the tourism (Table 2).

Table 2. A set of questions during the research of the views and opinions of citizens in the Republic of Serbia

1.Frequency of travel at home and abroad?
2.Do you work in a catering facility-hotel, hostel, café, restaurant?
3.How familiar are you with blockchain technology?
4.Have you ever used cryptocurrencies?
5.Do you think hotel businesses should accept cryptocurrencies as a means of payment?
6.Do you think fast food chains should accept cryptocurrencies as a means of payment?
7.Do you think restaurants should accept cryptocurrencies as a means of payment?
8.If you own cryptocurrencies, would you use them for travel purposes?
9.If you own cryptocurrencies, would you use them to pay in hotels?
10.What is your position regarding catering facilities that accept cryptocurrencies?
11.If there is a better tourist offer by paying digital currencies, would you accept that offer?
12.Do you think cryptocurrencies will become a major means of payment in tourism and hotel industry over the next 10 years?
13.Should more hotel facilities in the Republic of Serbia support cryptocurrencies as a means of payment?
14.What is your position on travel agencies that accept payments to cryptocurrencies?
15.Should travel agencies in the Republic of Serbia accept and use cryptocurrencies?
16.What is your position on the use of digital currencies to travel on cruise ships?

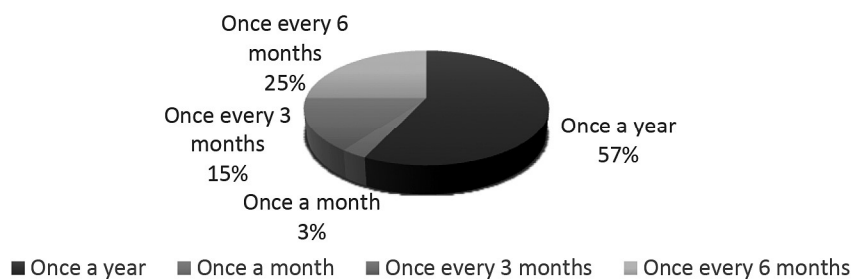
Source: Author's research

Results and discussion

In our research, we see that the frequency of travel „once a year“ 57%, or less prev-

alent than other options offered, „Once a month“ is 3%, „Once every 3 months“ 15%, „Once every 6 months“ 25%. Results of our research are shown in Figure 1.

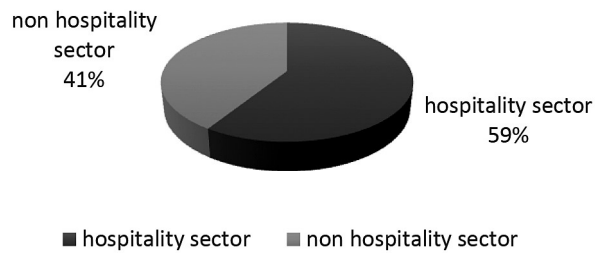
Figure 1. Graphic percentage of respondents' frequency of travel



Source: Author's research

The next question tells us that 59% of respondents do not work in the hospitality sector, while the rest 41% work in hospitality sector. Results of our research are shown in Figure 2.

Figure 2. Graphic percentage of respondents' working in hospitality or other industry

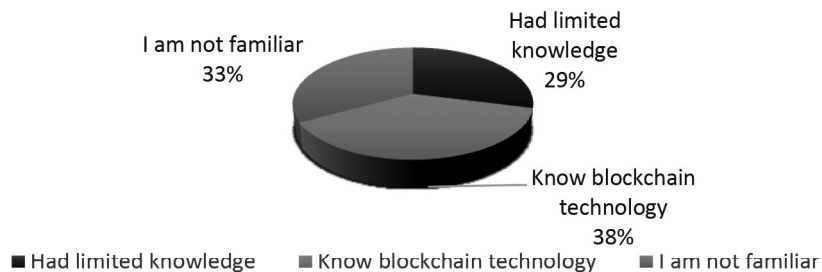


Source: Author's research

In a further sequence of questions, we can see that the majority of respondents surveyed are familiar with blockchain technology. Among them, the male population (70%), stated that they „Had limited knowledge“ (29%), or „Know blockchain tech-

nology“ (38%), „I am not familiar“ (33%). These results are similar in Croatia as well, where majority of people are still learning about blockchain features (Erceg et al., 2020). Results of our research are shown in Figure 3.

Figure 3. Graphic percentage of respondents' who are familiar with blockchain technology

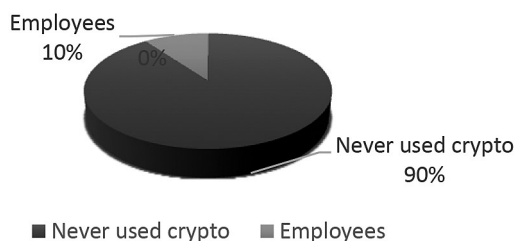


Source: Author's research

Below, we note that the majority of respondents, as many as 90%, have never used cryptocurrencies. Our study indicates that all users of cryptocurrencies are men. Additionally, in study by Leung and Dickinger (2017) highlights that respondent's between 15–30 years old, majority of male (69%) adopted digital currencies as a payment method. Aslo, Treiblmaier (2020) reported that most Bitcoin users are male, between 18–36 (52.2%). In other study

Bohr and Bashir (2014) stated that 46.7% of the digital currency users are between 22–30 years old male respondents as well. In Malayia, Alaeddin and Altounjy (2018) in their research highlights that 76% of the respondents never used digital currencies, 21% know a little bit about cryptocurrencies and only 3% of the respondents do have experience related to usage of digital currencies. Results of our reserch are shown in Figure 4.

Figure 4. Graphic percentage of respondents' on the use of cryptocurrencies

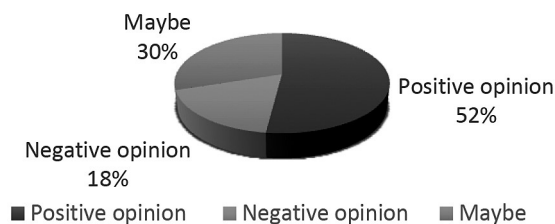


Source: Author's research

When asked about the acceptance of cryptocurrencies as a means of payment, there is a positive opinion of the majority of the respondents 52%, the rest of the participants answered „No, I should not“ 18% and the rest of the respondents stated „Maybe“

30%. Above-mention study in Malaysia, reports positive attitude towards acceptance of new digital currencies among respondents Z generation, people born between 1996–2015 (Alaeddin & Altounjy, 2018). Results of our research are shown in Figure 5.

Figure 5. Graphic percentage of respondents' opinions on the use of cryptocurrencies as a payment method

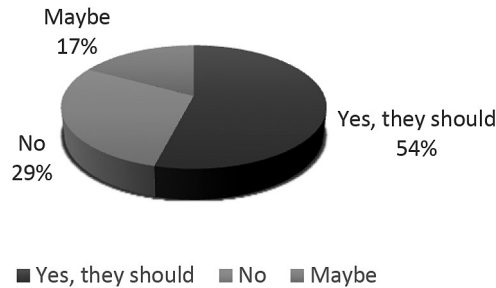


Source: Author's research

Next question „Do you think fast food chains should accept cryptocurrencies as a means of payment“, the majority of respondents 54% think that „Yes, they should“, 29% „Not“, and only 17% answer „Maybe“. The next question „Do you think restaurants should accept cryptocurrencies as a means of payment“, 57% of respondents answered

„Yes, they should“, 26% of respondents stated „No, they should not“, and again 17% of respondents answered „I don't know“. Previous-mentioned research in Asia reports that 22% of travelers are using cryptocurrencies as a payment method in restaurants and cafes (Treiblmaier, 2020). Results of our research are shown in Figure 6.

Figure 6. Graphic percentage of respondents' opinions on fast food chains accepting cryptocurrencies

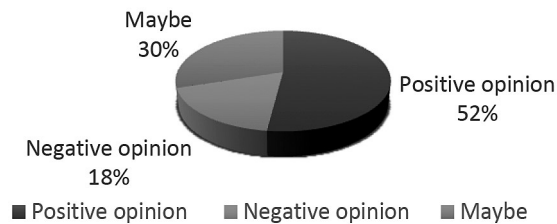


Source: Author's research

Further question used in our research „If you have cryptocurrencies, would you use them for tourism purposes“, 58% of respondents answered „Yes, I would use“, 18% of respondents answered „No, I would not use“, while 24% of respondents answered

with „Maybe“. Pantelis and Aikaterini (2019) in their study in Greece found that only 4% of the respondents use digital currencies for traveling matters. Results of our research are shown in Figure 7.

Figure 7. Graphic percentage of respondents' opinions on the use of cryptocurrencies for tourism purposes



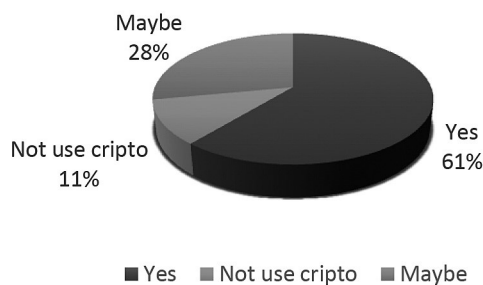
Source: Author's research

Further research on the question „If you own cryptocurrencies, would you use them to pay in hotels“, we received an interesting answer that 61% of respondents would like to use cryptocurrencies in hotels, if they owned them, 11% answered „No, I would

not use it“, and only 28% of the respondents answered „Maybe“. Author Treiblmaier (2020) highlights that 50% of the respondents use digital currencies to pay their accommodation while traveling. Results of our research are shown in Figure 8.



Figure 8. Graphic percentage of respondents' opinions on the use of cryptocurrencies for paying hotel

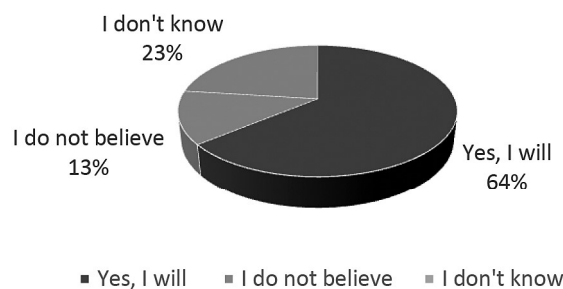


When asked „What is your attitude towards restaurants that accept cryptocurrencies“, 58% of respondents have positive attitude, while 42% has negative attitude towards business that accept cryptocurrencies. With next question „If there is a better tourist offer by paying with digital currencies, would you accept that offer“, 61% of respondents are willing to accept a better tourist offer by paying with cryptocurrencies, 29% of respondents answered „No, I would not accept“, while 10% of respondents answered „Maybe“.

Looking to the future, the question „Do you think cryptocurrencies will become the main means of payment in tourism and hos-

pitality in the next 10 years“, answers show a positive attitude where 64% answered „Yes, I will“, and 13% of respondents stated „I do not believe“; 23% of respondents answered „I don't know“. In Turkey, research by Şimşek (2019) report bright future for cryptocurrencies among respondents, as they believe that cryptocurrencies will become the main tool of online payment in the near future. Another study in India also supports positive opinion among respondents, believing that digital currency payment is very promising in the future business transactions (Jani, 2018). Results are shown in Figure 9.

Figure 9. Graphic percentage of respondents' opinion towards restaurants that accept cryptocurrencies

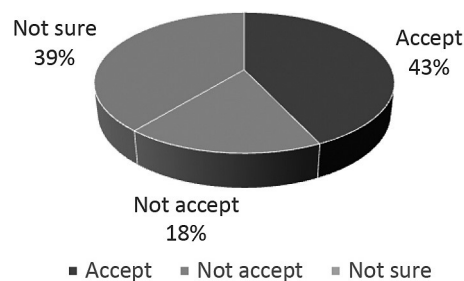


Source: Author's research

Next question „Should more hotel facilities in the Republic of Serbia support cryptocurrencies as a means of payment“, answers indicate that 51% of respondents think „Yes, it should“, 24% „No, it should not“, and 25 are „Not sure“. The question regarding the attitude of the respondents towards travel agencies that accept payments in cryptocurrencies is mostly positive 72% versus negative ones 28%.

When asked „Should travel agencies in the Republic of Serbia accept and use cryptocurrencies“, most respondents think that travel agencies in the Republic of Serbia should accept cryptocurrencies in business 43%, also 18% of respondents believe that „Should not“, 39% answered „I’m not sure“. Treiblmaier (2020) stated in his survey that 36% of the respondents use digital currencies to purchase tour packages. As shown in Figure 10.

Figure 10. Graphic percentage of respondents’ opinions towards travel agencies accepting cryptocurrencies



Source: Author’s research

When asked about the attitude of using digital currencies for cruise travel, 61% of respondents has a positive attitude and 39% negative reply.

Based on the research, it has been proven that the majority of citizens of the Republic of Serbia between the ages of 18 and 60 have a positive attitude towards catering facilities that accept cryptocurrencies. Confirmation of the basic hypothesis H1 instills optimism in the openness of the tourist market of the Republic of Serbia towards the application of cryptocurrencies in the future. Also, the tested sample confirmed the auxiliary hypothesis H2, that the younger population aged 18 to 30 is more willing to accept cryptocurrencies as a regular means of payment compared to other age groups. In addition, the research confirmed the auxiliary hypothesis H3, which is that the employed population in the surveyed sample

has a more positive opinion towards digital currencies compared to other categories of respondents. Further insight into the structure of employed respondents shows that respondents engaged in tourism show more positive attitude towards the use of cryptocurrencies compared to other groups, which confirmed the auxiliary hypothesis H4. When we talk about gender structure based on research, it is noticeable that male respondents currently show more interest and leadership in knowledge and use of blockchain technology and cryptocurrencies than women, which confirmed the last in a series of auxiliary hypotheses, H5. The fact is that on a global level, male representatives are currently more present in professional discussions, conferences and gatherings on the topic of cryptocurrencies, and we can see the mentioned situation on the domestic market as well.



Conclusion

The tourist market has been growing over the years, which contributes to the constant adaptation to new trends in the field of digital technologies, acceptance of innovations, as well as meeting the changing needs and desires of users of tourist services. In order to survive and remain competitive in a dynamic tourism market, hotels, restaurants and other participants in it are continuously improving their products and services to increase the satisfaction and loyalty of users of their services. Cryptocurrencies, as decentralized, can greatly help tourism sector. At the same time, all transactions are transparent, which is an additional benefit for all participants. On the other hand, the use of cryptocurrencies also involves certain risks, which pose the greatest challenges for hotels, restaurants, airlines and travel agencies when deciding whether to accept cryptocurrencies. Countries around the world generally have different legal regulations regarding cryptocurrencies, which makes it difficult for crypto enthusiasts to travel. In addition, users of cryptocurrencies are often not protected by consumer protection laws when fraud and cyber attacks occur, because the cryptocurrency market is not regulated by the central bank – in fact, many countries do not consider them a means of payment. Additionally, cryptocurrencies are very volatile and their value often varies, and in order to be used, significantly developed financial and digital literacy is required. Currently, cryptocurrencies are not widely represented and used in the Republic of Serbia.

Survey conducted showed that respondents are familiar with blockchain technology and cryptocurrencies, but mostly did not use them and that they generally have a positive attitude towards hotels and restaurants that accept them. In addition, most respondents are willing to make payments with cryptocurrencies if the

travel/service offer was more accessible. It is recommended that further research focus on blockchain technology and its application in tourism and hospitality in the Republic of Serbia, due to its ubiquitous appearance on the global tourism market.

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