


APPLICATION OF CRYPTOCURRENCY AS A METHOD OF PAYMENT IN TOURISM

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Abstract

Purpose - The paper summarizes the theoretical and empirical knowledge on the use and transactions of cryptocurrencies in tourism and examines the use of cryptocurrencies as a means of payment in Croatian tourism.

Methodology/Design/Approach – The empirical research examines the attitudes and opinions of tourists in Croatian tourism regarding their willingness to pay with cryptocurrencies while travelling.

Findings - The research results show a low level of payment for tourism services with cryptocurrencies in the Republic of Croatia, but a fairly open acceptance of cryptocurrencies as a means of payment for tourism services. The study found no correlation between the profile of respondents and the motivation to pay with cryptocurrencies. However, a correlation was found between the age of the respondents and the intention to pay, but there were no statistically significant differences in the intention to pay according to the age group of the respondents. No correlation was also found between motivation and intention to pay with cryptocurrencies.

Originality of the research – The study can serve as a basis for further research on the use of cryptocurrencies in tourism. It helps to expand knowledge about the motivation and intention to use cryptocurrencies on a tourism trip and to understand tourists' behavior.

Keywords: payment innovations, virtual money, blockchain, tourism experience.

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INTRODUCTION

Throughout history, the tourism industry's openness to technological innovation has led to continuous improvements in the tourism industry (Buhalis, 2003; Galičić and Šimunić, 2006; Almeida et al., 2019; Sigalat-Signes et al., 2020). With this approach, the tourism industry has simultaneously created opportunities and pushed the boundaries of travel. In developing new and innovative products that meet the needs of customers, the tourism industry must combine technology, knowledge, and money (Colombo and Baggio, 2017). Digitalization is one of the market forces driving innovation and transforming analog processes into digital ones. Contactless stay in the hotel, contactless payment, chatbots based on artificial intelligence (Barna et al., 2021) in reservation, the use of cloud-based systems in the hotel operating system, digital travel information (Nemec Rudež 2023) etc. are just a few examples of the use of digitalization in business.

A sequence of events that created a favorable environment for financial transactions with digital currencies enabled the creation of the first cryptocurrency, Bitcoin, in 2008, which uses cryptography and blockchain technology. This virtual currency is an alternative to paying with traditional, so-called fiat currencies. The development of cryptocurrencies has been further fueled by dwindling trust in fiat currencies. As of February 2023, there are 8,685 cryptocurrencies in the global market, but the top 20 cryptocurrencies account for nearly 90% of the total cryptocurrency market, with a market capitalization of \$858.43 billion as of December 2022 (De Best, 2023). Cryptocurrencies, as a decentralized form of financial asset beyond the control of the electronic banking system, are changing behavioral patterns in the financial market, and trust in financial institutions is giving way to trust in technology (Wątorok et al., 2021). The growing presence of cryptocurrencies as an alternative payment method is a new challenge that leads to a systematic reflection on their possible integration into traditional payment systems in tourism. This process was further accelerated by the risks of the Covid 19 pandemic, which highlighted the importance of contactless payment as one of the measures to increase health security.

The fact is that the tourism industry bases its competitiveness on being able to identify and quickly respond to the specific needs of tourists. It is estimated that by 2023 there will be around 420 million users of cryptocurrencies worldwide (TripleA, 2023), representing about 5.7% of the world's population and an important segment of potential users of tourism services who will need to pay with cryptocurrencies. Tourists prefer those destinations and tourism service providers that are able to satisfy their needs during a trip (Kim et al., 2021). As cryptocurrencies become more prevalent, the ownership and acceptance of virtual currencies can have additional positive impacts on the business of travel providers (Barreto et al., 2019; Çapar, 2021). Therefore, it is not surprising that the possibilities and profitability of integrating cryptocurrencies into tourism payment systems are being considered.

Tourists are recognizing cryptocurrencies as a cost-effective, secure, and viable means of payment (Treiblmaier et al., 2021), which supports the upward trend in the popularity of cryptocurrencies and their increasing reach in payments. New cryptocurrency payment solutions are enabling greater availability of payments for tourism and other destination services, transportation services, etc. This has been made possible by blockchain technology, which provides a secure environment for financial transactions (Aiazbekov, 2023). However, the problem remains high volatility, which is identified as one of the potential risks of cryptocurrency payments in tourism. For this reason, tourism sector players are working with various organizations that offer acceptable cryptocurrency payment solutions to completely avoid price instability due to exchange rate fluctuations. In Croatia, Electrocoin with the PayCek system and Fima Plus with the FIMA Pay system offer an intermediary platform for cryptocurrency payment processing, through which cryptocurrencies are almost instantly converted into fiat currencies to avoid the volatility of the cryptocurrency exchange rate. By adopting cryptocurrencies as a means of payment, the tourism sector is promoting innovation in payments.

The tourism sector at the global level, including in the Republic of Croatia, suffered major losses in 2020 due to the Covid 19 pandemic. In the period of recovery of the tourism sector, the development and introduction of innovative products is seen as an incentive to conquer existing and new segments of the tourism market (Çapar, 2021; Sharma et al., 2021). Tourists are changing their habits and starting to discover the benefits of using cryptocurrencies on vacation trips, such as simplifying cross-border transactions and overcoming the costs associated with transactions in different currencies (Treibmaier et al., 2021). However, there is still a lack of research to understand tourists' willingness to use cryptocurrencies for spending during a vacation trip. In this context, studying the attitudes and opinions of stakeholders in the Croatian tourism market towards cryptocurrencies and their willingness to accept this payment method in business and on a vacation trip should lead to a better understanding of the challenges and prospects of their use in tourism. The study develops a comprehensive framework for understanding trends in the use of cryptocurrencies and provides answers to the following research questions:

- 1) What is the adoption rate of cryptocurrencies as a means of payment in travel?
- 2) How do tourists perceive cryptocurrencies?
- 3) What motivates tourists to use cryptocurrencies as a means of payment?
- 4) What are tourists' intentions to use cryptocurrencies in future travel?

The study summarizes the existing literature on the use and transactions of cryptocurrencies in tourism and identifies the use of cryptocurrencies in Croatian tourism. A survey was conducted among tourists visiting the Republic of Croatia in December 2022. Respondents were asked to give their opinion on the motivation for using cryptocurrencies and the intention to use them in future trips. The research findings extend previous research by developing a theory-based framework that illustrates what questions need to be further explored to understand tourists' intentions to use cryptocurrencies on a tourism trip. The main objective of this paper is to increase knowledge about tourists' perceptions of cryptocurrencies as a means of payment for tourism services. It is expected that there will be differences between the use and intention to use cryptocurrencies in terms of respondents' sociodemographic characteristics in line with existing research (Treiblmaier et al., 2020; Zrnić et al., 2022)

1. LITERATURE REVIEW

In modern society, in addition to the traditional means of payment (cash and credit cards), there are digital money, mobile payment etc. (Johnson et al., 2018). The technological evolution contained in the transition from analog and electrical technology to digital technology is accompanied by a variety of innovations, including the emergence of cryptocurrencies (Milutinović, 2018), digital money based on blockchain technology (Astuti, et al, 2022), and whose generation and distribution uses cryptography or encryption. The expansion of the application of blockchain to financial transactions (online payments and payments with credit and debit cards) (UNCTAD, 2021) also enabled payment with cryptocurrencies. The phenomenon of cryptocurrencies as a digital medium of exchange, digital money that cannot be physically touched and is not subject to the supervision of a central bank or a state, arouses the interest of the scientific public, as demonstrated by numerous published studies on the understanding of the cryptocurrency system (Mukhopadhyay et al, 2016), investment in cryptocurrencies (Cunjak Mataković and Mataković, 2018; Bošnjak and Bušelić, 2022), and the cryptocurrency market (Wątopek et al., 2021).

The theoretical foundation for cryptocurrencies was laid by Wei Dai in 1998. However, it was the intensive use of electronic money and the commercialization of payments over the Internet, as well as the establishment of the peer-to-peer system, a platform that enables the use of digital currencies (Cunjak Mataković & Mataković, 2018), that created the conditions for the development of virtual currencies. In 2008, the first cryptocurrency, Bitcoin, was introduced by an unknown author named "Satoshi Nakamoto" (Batey, n.d.). According to Nuryyev et al. (2018), cryptocurrency payments are fast, secure, and anonymous person-to-person payments over the Internet, without time and space constraints. By studying factors that influence the intention to use cryptocurrency payments they found that the intention to accept payments with cryptocurrencies is influenced by the perceived usefulness and perceived ease of use of these payments. Perceived usefulness, in turn, is influenced by trust in these payments. Interestingly, perceived usefulness has not been shown to be significantly influenced by the different types of risks associated with cryptocurrency payments, including financial risks, technological risks and social risks. Perceived ease of use, in turn, is influenced by the convenience of cryptocurrency payments and has been shown not to be significantly influenced by trust. Jonker (2019), in his study on the reasons for adopting crypto payments among online merchants, found that the adoption of crypto payments is modest, but there is a strong interest among online merchants to adopt them. There are also studies on the risks of payments with cryptocurrencies (Gilbert, & Loi, 2016).

Gössling (2021) assigns tourism an important role as a driver for the introduction of new technologies. Cai et al. (2019) examine advances in the use of technology in tourism and hospitality and find that in tourism and hospitality organisations, innovative technologies are used by managers as a strategic tool to gain a competitive advantage, develop marketing strategies or support their decision-making. For Nuryyev, G. et al. (2021) bitcoin and other cryptocurrencies have emerged as an alternative form of money, independent of any particular national currency or geographic location. They see the introduction of payments in cryptocurrencies as one of the factors to achieve competitiveness in the hospitality industry. Their study provides insight into the factors influencing hospitality businesses' intention to use new digital payments, and the study's findings highlight perceived security in particular as a strong indicator of adoption of new payment technologies. Payment security, along with the risk and attitude variable, is also introduced by Radic et al. (2022) in their study, which sets up a model for technology acceptance. They found that perceived usefulness, perceived ease of use and security are antecedents of attitude, while attitude, performance expectancy, effort expectancy, social influence and facilitating conditions have significant effect on intention to use cryptocurrency payments in tourism.

Trends using digital money, mobile payment etc. be observed in tourist travel. Miao and Jayakar (2016) point out that hotel services are more often paid for with credit cards than cash due to the risk of losing cash on a holiday trip. Cryptocurrencies have the functions of fiat currencies in terms of exchange, measure of value, standard for deferred payments, and store of value. According to Treiblmaier et al. (2021), the universality of payments and minimal fees due to the elimination of intermediaries are advantages of cryptocurrencies over fiat currencies, to which is added the ability to pay anywhere, anytime. This is particularly important for tourism in terms of traveler mobility. The changes brought about by the adoption of cryptocurrencies as a means of payment and their increasing popularity, particularly Bitcoin, as well as the recognition and exploitation of the economic potential of chained blocks as a system that provides a secure environment for conducting financial transactions, are prompting researchers to examine the application of cryptocurrencies in tourism and hospitality in more detail (Pilkington et al., 2017; Jain et al., 2023; Aiazbekov, 2023; Gültekin, 2017). Research focuses on the impact of cryptocurrencies on increasing tourism demand (Chen & Tham, 2022), supporting the development of local economies and promoting multiplier effects with bitcoin and blockchain in tourism 2.0 (Pilkington et al., 2017), and the role of cryptocurrencies in promoting sustainable tourism development goals (Tham & Sigala, 2020).

Quan et al. (2023) studied the perceptions and reactions of tourists in hotels and on holiday trips to different payment methods (mobile, traditional and cryptocurrency) and compared the perceptions of Chinese and Korean consumers. The research showed that cryptocurrencies have not gained the trust of Korean consumers, unlike Chinese consumers. This highlights the differences between Chinese and Korean consumers in terms of their attitudes and philosophies due to their different social environments. American consumers show more trust. A study conducted by Travalat.com (2021) found that 22% of American travellers plan to pay for part of their next trip with cryptocurrencies, and 70% of the nearly 10 million bookings made on Travalat.com used cryptocurrencies. Zrnić et al. (2022) examine the challenges of using cryptocurrencies in tourism, with a focus on the Republic of Serbia, and reach conclusions about the attitudes and opinions of respondents in the Republic of Serbia's tourism market towards cryptocurrencies and their willingness to accept them in their work, business and travel. Çapar (2021) highlights the link between the increasing use of cryptocurrencies in tourism and hospitality and an increase in monetary risk. Kanoujiya and Rastogi (2023) research the link between cryptocurrencies and the tourism industry and the impact of cryptocurrency volatility on tourism. Barreto et al. (2019) propose the use of cryptocurrencies and blockchain technology as a tool to reduce poverty in Latin America and the Caribbean through economic activities in tourism.

Closely related to cryptocurrencies, blockchains in tourism are being studied, not only from the perspective of paying for travel, but also in terms of the impact of blockchains on the value system in the tourism industry to determine their potential benefits (Thees et al, 2020). The literature cites some of the first examples of blockchain and cryptocurrency adoption by leading airlines (developing their own air token in collaboration with Winding Tree, a travel blockchain platform) and hotel chains (Marriott's Bonvoy loyalty system and reservation system) (Marriott, 2021; Tham & Sigala, 2020). This encourages other tourism and hospitality companies to adopt cryptocurrencies (CheapAir, Expedia, TUI) and develop online travel platforms based on blockchain technology (Travalat). In addition, research focuses on its application to small and medium-sized enterprises, which account for more than 90% of the total number of businesses in tourism in many countries of the world and should have the same availability and ability to use new technological achievements (Tham & Sigala, 2019; Nuryyev et al., 2020; Roussou, (2016).).

Cryptocurrencies and blockchains have introduced a new technology worldwide, offering a wide range of innovative products and services for tourism. Croatia is not on the list of countries that strongly support the development of blockchain technology (Fuzul, & Juričić, 2021) and the use of cryptocurrencies. Nevertheless, research shows the interest of the real and public sector in the application of blockchain technology (Rijeka Marketplace integrated tourism platform, Rijeka City Tourist Board (Ministry of Tourism and Sports, 2019).

However, there is a lack of research showing the adoption of cryptocurrencies as a means of payment in the tourism sector, as well as research on tourists' perceptions of their motivation to use cryptocurrencies and their intention to use cryptocurrencies in future trips.

2. METHODOLOGY

Small countries like Croatia strive to be competitive in the tourism market with innovative tourism products. The introduction of cryptocurrency payments is seen as an opportunity to achieve a competitive advantage for Croatian tourism businesses and to incentivise the adoption of existing and new segments of the tourism market. In this context, the perception of tourists coming to Croatia and their willingness to accept new payment methods, such as payments with cryptocurrencies, will be investigated.

The research is based on qualitative primary data and was conducted with tourists staying in hotels and other accommodation in the Republic of Croatia in December 2022. The goal was to gain insight into tourists' familiarity with using cryptocurrencies as a form of payment and to understand perceptions of motivation and intentions to use cryptocurrencies in future tourist travel. 148 surveyed tourists participated in the survey. The criterion used to determine the relevance of answering the questions in the survey was the respondents' familiarity with cryptocurrencies as a means of payment. Respondents were offered to answer the question: are they familiar with cryptocurrencies as a means of payment in tourism. Questionnaires to which respondents gave a negative answer were not included in further processing. 46 questionnaires or 31.1% were discarded. The result shows that 31.1% of the respondents are not familiar with cryptocurrencies as a means of payment in tourism.

According to the State Bureau of Statistics (2023, there were 329,476 tourist arrivals in December 2022, and this data is used as the population for determining the minimum sample size for the survey. With a standard reliability of 95% and a standard error of no more than 10% (Owen & Jones, 1994; Bouma et al., 1995), the collected number of completed questionnaires of 102 is considered a representative sample.

The survey was conducted by means of a questionnaire on a Google form sent to accommodation establishments throughout Croatia with a request to forward the link to the form to the accommodation establishment's guests. Since participation in the survey is anonymous, it is not known in which establishments the guests stayed. The questionnaire consists of three groups of questions. The first group of questions concerns the socio-demographic characteristics of the respondents (tourists) (age, gender, country of origin, education), their familiarity with cryptocurrencies and their experience with using cryptocurrencies.

The second set of questions related to tourists' perceptions of their motivation to use cryptocurrencies on a tourist trip (Treiblmaier et al. 2021), while the third set of questions related to respondents' opinions of their intention to use cryptocurrencies on future trips (Nuryyev, 2018; Zrnić et al., 2022). The questions were based on previous studies (Jang et al. 2006; Treiblmaier et al., 2021; Thees et al. 2020; Zrnić et al., 2022) and were adapted to the needs of this study. Construct motivation (I am interested in paying with cryptocurrencies on a tourist trip because...) consists of five variables ('Cryptocurrencies can be used anywhere, anytime', 'The transaction costs involved in making payments with cryptocurrencies are lower compared to fiat currencies', 'Transactions with cryptocurrencies do not require a bank account', 'The cryptocurrency account is not linked to the owner's identity details' and 'Payments in cryptocurrencies do not require PIN or a signature for verification'), same like construct 'intention' to use cryptocurrencies on future tourist trips ('I intend to use cryptocurrencies on a tourist trip', 'I would recommend the use of cryptocurrencies to others', 'I would use cryptocurrencies to pay for all tourist and other services on the trip', 'Paying with cryptocurrencies would be useful for me on a tourist trip' and 'Paying with cryptocurrencies would give me security on a tourist trip'). The questions were of the closed type. Respondents could choose one of the offered answers in the first group of questions. The motivation and intention to use cryptocurrencies were rated on a five-point Likert scale (Jang et al., 2006), where 1 means that they do not agree at all with the given statement and five means that they completely agree with the given statement. Tourists' perceptions of their motivation and intention to use cryptocurrencies in future travel may be an indicator of whether cryptocurrencies will have greater applicability in tourism in the future.

The data was processed with descriptive statistics in the program IBM SPSS 26 and the correlation between the motivation and intention to use cryptocurrencies in travel was determined. The variables follows an ordinary measurement scale (five-point Likert scale) and the Spearman correlation coefficient was used for correlation analysis, while the Mann-Whitney U-test was used to examine the differences between each socio-demographic group of respondents in terms of motivation and intention to use cryptocurrencies on future tourist trips.

RESULTS AND DISCUSSION

The research for this article included 102 tourists staying in Croatian destinations in December 2022 and assessed the identified motives for using cryptocurrencies in tourism and the intention to use cryptocurrencies in future trips. The profile of respondents and their use of cryptocurrencies during their stay in the Republic of Croatia is included in the study presented in Table 1.

Table 1: Descriptive analysis of the profile of respondents (N=102)

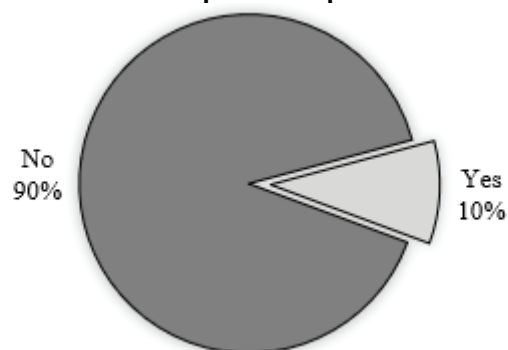
	Variable	Frequency	Percentage in %
Gender	Male	53	52,0
	Female	49	48,0
Age	18-25	12	11,8
	26-35	43	42,2
	36 and more	47	46,1
Education in short sea shipping	High school education	73	71,6
	Higher and higher vocational training	29	28,4
	The rest	-	-
Country of origin	Austria	27	26,5
	Slovenia	20	19,6
	Germany	16	16,0
	Hungary	9	8,8
	Italy	7	6,9
	Croatia	6	5,9
	Czech republic	5	4,9
	Poland	4	3,9
	Netherlands	3	2,9
	United Kingdom	3	2,9
	USA	2	2,0

Source: author's research results.

Analysis of the population included in the study in terms of gender shows a fairly balanced sample with 53 (52.0%) male and 49 female (48%) respondents. Almost half of the respondents (46 and 47.1%, respectively) are in the age group 36 years and older, followed by respondents in the age group 26-35 years with a slightly lower percentage (43 and 42.2%, respectively). The lowest percentage of respondents is found in the age group up to 25 years, namely 12 and 11.8%, respectively. In terms of education, the majority of respondents have secondary education (73 and 71.6%, respectively), while 24 respondents or 23.5% have higher education. The structure of respondents in terms of country of origin shows that most guests come to Croatia from traditional tourism markets: Austria, Slovenia and Germany, which account for 63% of the total number of guests surveyed. According to the data of the State Statistical Office (2023), in the achieved tourism traffic of the Republic of Croatia in 2022, guests from Germany take the top position with 28.6% of the total tourist overnight stays, followed by guests from Slovenia with 9.1% and guests from Austria with 9.0%.

To the question: have you used cryptocurrencies as a means of payment for tourist services in the Republic of Croatia, the majority of respondents answered no. Only 10 respondents or 9.8% answered the question in the affirmative (Figure 1).

Figure 1: Payments with cryptocurrencies on a tourist trip in the Republic of Croatia (N=102)



Source: author's research results.

Such an order of responses was to be expected, considering that payments with cryptocurrencies are still in their infancy in Croatia. However, with the addition of more and more websites accepting cryptocurrencies as payment, cryptocurrency payments are experiencing growth. Electrocoin and Fima Plus, intermediary platforms for processing cryptocurrency payments, have contributed to this, and the payment system includes hotels, catering establishments, gas stations, travel agencies, sports centers, shopping chains, etc. The Marvie Hotel in Split offers room reservations and payments for all services within the hotel using Bitcoin and Ethereum, and nearly 800 accommodation options are available through the online platform Travalala.com (2023), which can be booked using cryptocurrencies. According to TripleA (2023), there are

49,208 cryptocurrency users in Croatia, which is about 1.23% of the total population and represents a significant segment of the domestic market. In terms of gender, the respondents use cryptocurrencies equally (50% of men and 50% of women). In contrast to this research, the study by Treiblmaier et al. (2021) showed that the respondents who use cryptocurrencies are mostly men, while the study by Zrnić et al. (2022) showed that only men use cryptocurrencies. Respondents who use cryptocurrencies are mostly between 26 and 35 years old (70%). Treiblmaier et al. (2021) pointed out that cryptocurrencies are used by the largest percentage of the population aged 18 to 36 (52.2%).

Respondents were offered several answers to the question: What services have they paid for with cryptocurrencies in the Republic of Croatia? based on the payment options identified in the literature (Treiblmaier, et al. 2021; Zrnić et al., 2022) and on the websites of providers of tourist and other tourism-related services in Croatian destinations (accommodation reservations, airline tickets, tourist arrangements, excursions, souvenirs, car rentals, restaurants and bars, public transport, etc.). All respondents who use cryptocurrencies indicated that they use cryptocurrencies exclusively for booking accommodation at the destination. In addition, the research aimed to identify respondents' motivation for paying with cryptocurrencies on a holiday trip and the factors behind their motivation (Table 2).

Table 2: Respondents' motivation for using cryptocurrencies on a tourist trip (N=102)

I am interested in paying with cryptocurrencies on a tourist trip because...	Motivation				
	Cryptocurrencies can be used anywhere, anytime.	The transaction costs involved in making payments with cryptocurrencies are lower compared to fiat currencies.	Transactions with cryptocurrencies do not require a bank account.	The cryptocurrency account is not linked to the owner's identity details.	Payments in cryptocurrencies do not require PIN or a signature for verification.
N	102	102	102	102	102
Mean	3.68	4.26	4.16	3.57	3.79
Std. Deviat.	0.706	0.612	0.671	0.990	0.762
Variance	0.498	0.375	0.450	0.980	0.581
Minimum	2	3	3	2	2
Maximum	5	5	5	5	5

Source: author's research results.

Respondents rated the offered statements from 3.57 for the statement "Cryptocurrency account is not linked to the owner's identity information" to 4.26 for the statement "Transaction costs involved in cryptocurrency payments are lower compared to fiat currencies." Similar results were reached in previous research (Treiblmaier et al., 2021). Lower transaction costs with cryptocurrencies compared to fiat currencies were identified as the most significant factor that motivates respondents to use cryptocurrencies on tourist trips. The grouping of data of the mean of variables within the construct 'motivations' was performed in the programme SPSS. Spearman's correlation coefficient was examined the relationship between the variables 'gender', 'age', 'education' and the construct 'motivation' (Table 4).

Table 4: Correlation matrix of the profile of respondents and the construct "motivation" (N=102)

		Motivation	Gender	Age	Education	
Spearman's rho	Motivation	Correlation Coefficient	1.000	-0.007	-0.121	0.160
		Sig. (2-tailed)		0,943	0.227	0.109
		N	102	102	102	102
	Gender	Correlation Coefficient	-0.007	1,000	-0.057	-0.171
		Sig. (2-tailed)	0,943		0.570	0.086
		N	102	102	102	102
	Age	Correlation Coefficient	-0.121	-0.057	1.000	-0.026
		Sig. (2-tailed)	0.227	0.570		0.792
		N	102	102	102	102
	Education	Correlation Coefficient	0.160	-0.171	-0,026	1.000
		Sig. (2-tailed)	0.109	0.086	0.792	
		N	102	102	102	102

Source: author's research results.

The results of the Spearman's correlation coefficient did not reveal any statistical significance between the socio-demographic variables studied and the construct 'motivation'.

In order to determine the intention of tourists who have stayed in the Republic of Croatia to use cryptocurrencies in future trips, respondents were given the opportunity to rate five statements related to the construct 'intention' in Table 5.

Table 5: Descriptive analysis of the construct "intention" (N=102)

	Intention to use cryptocurrencies on future tourist trips				
	I intend to use cryptocurrencies on a tourist trip.	I would recommend the use of cryptocurrencies to others.	I would use cryptocurrencies to pay for all tourist and other services on the trip.	Paying with cryptocurrencies would be useful for me on a tourist trip.	Paying with cryptocurrencies would give me security on a tourist trip.
N	102	102	102	102	102
Mean	3.58	3.50	3.61	3.63	3.75
Std. Deviat.	0.895	0.830	0.935	0.954	1.031
Variance	0.801	0.688	0.874	1.031	1.063
Minimum	1	1	1	1	1
Maximum	5	5	5	5	5

Source: author's research results.

Respondents expressed less intent to pay with cryptocurrencies on future trips than motivation to pay with cryptocurrencies on trips, although statements about this construct were also positively rated. The highest rated statement was "Paying with cryptocurrencies would provide me with security on a tourist trip" (3.75). Following the Technology acceptance model (Nuryyev, 2018) perceptions of usefulness ('Paying with cryptocurrencies would be useful for me on a tourist trip') and perceptions of payment security ('Paying with cryptocurrencies would give me security on a tourism trip) are included as adoption factors for new technologies and potential intentions to use cryptocurrencies on future trips. Research (Khalilzadeh et. al., 2017) shows that security has a strong direct and indirect influence on the intention to use new payment technologies in tourism and plays a key role in the context of the new digital environment. Perceived security has a positive influence on the intention to use cryptocurrencies (Nuryyev, 2018). The statement "I would recommend the use of cryptocurrencies to others" was rated the lowest (3.50). With a score of 3.58 for the statement "I intend to use cryptocurrencies on a tourist trip", respondents indicated their willingness to use cryptocurrencies on a tourist trip in the future, which is consistent with the research of Zrnić et al. (2022). The grouping of data of the mean of variables within the construct 'motivations' was performed in the programme SPSS. Spearman's correlation coefficient was examined the relationship between the variables 'gender', 'age', 'education' and the construct 'intention' (Table 6).

Table 6: Correlation matrix of the profile of respondents and the construct 'intention' (N=102)

			Intention	Gender	Age	Education
Spearman's rho	Intention	Correlation Coefficient	1.000	-0.010	-0.296**	0.071
		Sig. (2-tailed)		0.919	0.002	0.480
		N	102	102	102	102
	Gender	Correlation Coefficient	-0.010	1.000	-0.057	-0.171
		Sig. (2-tailed)	0.919		0.570	0.086
		N	102	102	102	102
	Age	Correlation Coefficient	-0.296**	-0.057	1.000	-0.026
		Sig. (2-tailed)	0.002	0.570		0.792
		N	102	102	102	102
	Education	Correlation Coefficient	0.071	-0.171	-0.026	1.000
		Sig. (2-tailed)	0.480	0.086	0.792	
		N	102	102	102	102

** Correlation is significant at the 0.01 level (2-tailed).

Source: author's research results.

The results of the Spearman’s correlation coefficient (Table 6) showed no statistical significance between the studied variables ‘gender’, ‘education’ and the construct ‘intention’, while the Spearman’s correlation coefficient -0.296 showed a negative and weak relationship between the variable ‘age’ and the construct ‘intention’. The Mann-Whitney U-test was used to try and determine if there was a difference between the age groups of the respondents and the intention to use cryptocurrencies on future trips. The data in Table 7 shows that the value of the z-cross variable is not equal to or less than 0.05, which means that there is no statistically significant difference in the intention to pay with cryptocurrencies on future trips when considering the age group of the respondents.

Table 7: Mann Whitney U test of age and the construct ‘intention’ (N=102)

		Intention
Gender a. Grouping Variable: Age 18-25 26-35	Mann-Whitney U	121.000
	Wilcoxon W	1,067.000
	Z	-2.829
	Asymp.Sig. (2-tailed)	0.005
Gender a. Grouping Variable: Age 18-25 36 and more	Mann-Whitney U	79.000
	Wilcoxon W	1207.000
	Z	-3.884
	Asymp.Sig. (2-tailed)	0.000
Gender a. Grouping Variable: Age 26-35 36 and more	Mann-Whitney U	899.000
	Wilcoxon W	2,027.000
	Z	-0,913
	Asymp.Sig. (2-tailed)	0.361

Source: author’s research results.

Table 8 shows the correlation matrix of the two constructs “motive to pay with cryptocurrencies” and “intention to pay with cryptocurrencies”.

Table 8: Correlation matrix of the constructs “motive to pay with cryptocurrencies” “intention to pay with cryptocurrencies” (N=102)

		“Motivation”	“Intention”
“Motivation”	Spearman’s rho	-0.036	1.000
	Sig. (2-tailed)	0.722	
	N	102	102
“Intention”	Spearman’s rho	1.000	-0.036
	Sig. (2-tailed)		0.722
	N	102	102

Source: author’s research results.

The Spearman correlation coefficient shows that there is no relationship between the constructs ‘motivation’ and ‘intention’. Considering the research results and the fact that the use of cryptocurrencies as a means of payment in tourist trips is quite limited, it is unlikely that tourists, although motivated to pay with cryptocurrencies, will more significantly use them in future trips. On the contrary, in the study by Zrinić et al. (2022), the majority of respondents believe that cryptocurrencies could become the main means of payment in tourism and hospitality. Innovation is believed to provide opportunities in the tourism and hospitality industry, and payment innovation is important in these sectors, which include a large share of e-commerce in tourism services, especially in international transport (Kim et al., 2022). Other studies also suggest a positive attitude toward cryptocurrencies as the main means of online payments in the future (Jani, 2018; Šimšeka, 2019). Accordingly, it can be assumed that with the development of cryptocurrency technology and a better defined legal framework, the adoption of cryptocurrencies in the tourism and hospitality industry will increase.

CONCLUSION

This paper conceptually explores the use of cryptocurrencies and their impact on changes in tourism demand patterns. Enabling payments with cryptocurrencies represents a new chapter in the evolution of the tourism business, offering tourists the opportunity to pay for the tourist experience in a direct way, faster and more secure than traditional payment methods. Through the application of digital technology, a significant step has been made towards new patterns of behavior in tourism.

Recognizing the needs of tourism demand is one of the key factors in achieving competitiveness in tourism. The trends in the use of cryptocurrencies highlight the need to review travelers' openness to alternative forms of payment and to adapt tourism service providers to the new requirements of tourism demand. The competitiveness of tourism is based on innovative solutions. Accepting payments in cryptocurrencies can therefore be a positive step towards better satisfying the needs of guests in the digital age and better positioning in the tourism market. Monitoring market demands and aligning tourism service providers with the technologies of modernity is one of the prerequisites for the introduction of cryptocurrencies as a means of payment in Croatian tourism businesses. To increase the number of tourist service providers in the cryptocurrency system, it is necessary to improve the legal framework for cryptocurrency transactions. This would increase the sense of security when introducing the new payment technology. The introduction of cryptocurrency payments can be used as a marketing tool to attract new tourist groups to the Republic of Croatia.

The results of the study show that tourists who come to Croatia see their motivation to use cryptocurrencies when paying for tourism services, but also some caution in their intention to pay for tourism services with cryptocurrencies. The study can serve as a basis for further research on the use of cryptocurrencies in tourism. It helps to expand knowledge about the motivation and intention to use cryptocurrencies on a tourism trip and to understand tourists' behavior. The limitation of the research can be seen in the small size of the sample of respondents and the timing of conducting the research. Considering the seasonality of tourism in the Republic of Croatia, it would be advisable to conduct the research with a sample of respondents who come to Croatia in the summer months (July-August). Limitations may affect the relevance of the research.

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