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Proposing a multiple infrastructure model for the utilization of bitcoin

Proponer un modelo de infraestructura múltiple para la utilización del bitcoin

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Abstract

Today, one of the most important reasons for the pervasiveness of digital currencies is the unique benefits it provides to users, which can be attributed to the speed and efficiency of payments, especially overseas payments. This study aimed to provide a multiple infrastructure model for bitcoin use. This research has been done qualitatively using interview tools. The survey community consists of academic experts including Profesor universitarios specializing in the fields of digital currencies, e-commerce, international finance and finance, and empirical experts consisting of managers and experts of monetary and financial organizations (banks, stock exchanges). The selection of samples is saturated and purposeful. Finally, 18 people were selected to answer the interview questions. Data analysis was performed with the context theory (GT) approach. Based on the obtained results, 6 main networks, 14 main components and 77 sub-components were obtained as multiple infrastructures for bitcoin use. The results also showed that economic and social infrastructure can affect the use of bitcoin. If there is funding to buy the necessary devices and welcome bitcoin in the community, bitcoin will be more usable as a digital and acceptable currency.

Resumen

Hoy en día, una de las razones más importantes de la omnipresencia de las monedas digitales son los beneficios únicos que brindan a los usuarios, que pueden atribuirse a la velocidad y eficiencia de los pagos, especialmente los pagos en el extranjero. Este estudio tuvo como objetivo proporcionar un modelo de infraestructura múltiple para el uso del bitcoin. Esta investigación se ha realizado de forma cualitativa utilizando herramientas de entrevista. La comunidad de la encuesta está formada por expertos académicos, incluidos profesores universitarios especializados en los campos de monedas digitales, comercio electrónico, finanzas y finanzas internacionales, y expertos empíricos formados por gerentes y expertos de organizaciones monetarias y financieras (bancos, bolsas de valores). La selección de muestras es saturada y propositiva. Finalmente, se seleccionaron 18 personas para responder las preguntas de la entrevista. El análisis de los datos se realizó con el enfoque de la teoría del contexto (GT). Con base en los resultados alcanzados se obtuvieron seis redes principales, 14 componentes principales y 77 subcomponentes como múltiples infraestructuras para el uso del bitcoin. Los resultados también mostraron que la infraestructura económica y social puede afectar el uso del bitcoin. Si hay fondos para comprar los dispositivos necesarios y dar la bienvenida al bitcoin en la comunidad, será más útil como moneda digital y más aceptable.

Keywords | palabras clave

Cryptocurrencies, bitcoins, electronic, money, infrastructures, digital cash, Grounded Theory (GT), Iran.
Criptomonedas, bitcoins, electrónica, dinero, infraestructuras, efectivo digital, Teoría fundamentada (GT), Irán.

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1 Introduction

In recent years, cryptocurrencies have been strikingly welcomed since the introduction of the bitcoin concept by Nakamoto (Saiedi et al., 2020). Cryptocurrencies, particularly bitcoins, have been labeled new gold by many well-known financial media like CNN. Most importantly, the Commodity Futures Trading Commission (CFTC) has officially announced that virtual money, similar to gold and crude oil, is a commodity (Jin et al., 2019). At present, many countries such as the United States, Canada, Australia, and China legalize the exchange of cryptocurrencies. Among the essential reasons for the widespread use of cryptocurrencies is the unique advantages they provide to users. Some of these benefits are the speed and efficiency of payments, especially overseas payments, as well as the elimination of additional operating costs received by intermediaries. The pervasiveness of these currencies has caused Bitcoin, as one of the most famous ones, to come into the transactions of Iran's people.

This is while cryptocurrencies are one of the current issues of the country and governance, and policy-making institutions of Iran need to enact laws and regulations regarding the exploitation of these currencies, like other countries. Hence, this study intended to present a multiple infrastructure model for the use of Bitcoin. The World Economic Forum (WEF) predicts that approximately 10 percent of the world's gross domestic product (GDP) will be based on virtual currencies by 2027 and that governments will take into account alternatives to the development of virtual currencies because of missing their monetary power. Thus, the dollar's strength in the world will be declined (Farzin Bilandi, 2017). Bitcoin has been dramatically welcomed by the public among virtual currencies. Even if supposing that bitcoin itself cannot survive, it will undoubtedly have a worthy contribution to the boom of virtual currencies.

In Iran, digital currencies have also attracted the attention of many investors for a short time (Ghavam, 2018). In recent years, bitcoin mining in the country has found a substantial spread because of its high profitability. Parallel to the huge consumption of electricity consumed by the country, other national and governance concerns and challenges of cryptocurrency and bitcoin mining, specifically the way of calculating income tax, the likelihood of financial instability disappearing and capital outflows from productive markets, weakening the national currency and jeopardizing the reputation of the central bank, and the risk of destroying the assets of legal persons have been in the center of attention of policymakers and decision-making centers of the country such as the government and the Islamic Consultative Assembly.

There are numerous legal gaps and problems for the legalization of bitcoin in the country, as well as for providing conditions to prevent tax evasion and money laundering, etc. in the field of bitcoin. It appears that elucidating the position of Bitcoin in law and economics requires the adoption of a single and comprehensive policy on Bitcoin, attention to the legislature and electronic payment system on the basis of upstream (high level) laws and documents, and inclusion of other countries' laws in connection with Bitcoin. In the cases that the juridical, social, legal, economic, technological, and managerial infrastructure to employ and exchange bitcoin digital currency in the country is not provided, its mining and exchange operations by real people will be exposed to a variety of hazards such as theft, extraction slow, and deprivation of equal conditions against foreign competitors and so on. Moreover, if the government accepts this reality like some countries of North America, Western Europe, and Eastern Asia ... (Naderi, 2017; Sadeghi, 2019) and facilitates its mining and exchange, it can even possibly benefit government institutions, including the tax administration with balanced and calculated legislation and be a guarantee for citizens' accumulations.

It is inferred from all these contents that mining and trading with cryptocurrencies are regarded as a necessity; however, professional entry into this category requires the enjoyment of multiple infrastructures that not only the above-listed low-level countries like Iran do not have these infrastructures, but apparently have no intention of entering them. This is while the necessity and reality of the capital market, world trade, and the tendency of real and legal owners of capital will persuade governments to accept this modern trade and codify the essential juridical, social, legal, economic, technological, and managerial infrastructure.

Iran is one of the countries that has been cautious about this unsanctioned virtual currency. This virtual currency is currently controlled outside the borders of Iran due to its non-recognition by the Central Bank. Examining details such as advantages and disadvantages as well as negative or positive regulations for the use of this new financial instrument by various organizations and institutions such as the Central Bank, Parliamentary Research Center, Stock Exchange and Securities Organization, Anti-Money Laundering Headquarters, Ministry of Communications and Information technology, FATA police and the National Cyberspace Center started in 2014, but unfortunately these measures have not yet been implemented. This shows the need for applied research such as the present study.

2 Theoretical Literature of the Research

2.1 Electronic money (e-money)

Electronic money is a mechanism for paying stored or prepaid value where an amount of funds or value, which can be used by the consumer, is stored in an electronic device and is available to the user (Nasiri Ahmadabadi, 2018). The European Union in its draft directive has defined "e-money" as follows: E-money is a mechanism for paying stored or prepaid value in which an amount of funds or value that can be exploited by the consumer is stored in an electronic device and are in the possession of the customer (Kahn et al., 2019).

Electronic value is purchased by the consumer and the customer, and its account balance is reduced each time it directly connects to other devices or the consumer uses the device to make a purchase through a sales terminal or even from computer networks like the Internet. Contrary to a variety of multipurpose prepaid cards (such as telephone cards), e-money products are designed and manufactured to be extensively exploited and are considered versatile payment devices. E-money contains both prepaid cards (sometimes called smart cards or e-wallets) and prepaid software products that utilize computer networks such as the Internet (sometimes referred to as e-cash) (Jack et al., 2010).

2.1.1 Features of E-money

1. Store of Money Value: The value of e-money is stored electronically in an electronic device. 2. Transfer of Money Value: The value of e-money is transferred in various methods. Some types of e-money provide the possibility of parallel electronic transfers directly from one user to another one without the intervention of a third party (Widayat et al., 2020). 3. Record of Transfer: Most schemes record some details of transactions made between the consumer and the seller in the central database, and monitoring the registered information is possible. 4. Number of Partners: The number of partners and parties who are effectively involved in e-money transactions is much

more than contract transactions (generally in e-money trading, network operator, hardware and software vendor, transaction transfer, and settlement). 5. Existence of Technical Barriers and Human Errors: These barriers can make the implementation of transactions difficult or impossible (Nasiri Ahmadabadi, 2018).

2.2 Virtual Money (Virtual Currency)

Following entering money into the people's daily exchanges, the banks occasionally attempted to implement their economic policies by issuing or collecting money with the support of governments. Besides, monetary policies sometimes caused that, by pouring large amounts of money into the market, they influence its value. Moreover, banks and financial institutions, as financial intermediaries, in the current global exchanges receive remarkable amounts of money as money transfer costs and cost of money transactions (Manahov, 2021).

To facilitate doing financial affairs and making money without the presence of intermediaries (banks and financial institutions), the notion of virtual money, meaning cryptocurrency, was first raised by Wei Dai. He proposed a new type of money that employs computer encryption to control money generation and conduct transactions without intermediaries and central authority (Ballis & Drakos, 2020). However, the idea was merely a theory until 2009. In this year, simultaneously with the recession, a person named Satoshi Nakamoto introduced a virtual currency called Bitcoin along with a mathematical algorithm for its production in the world and presented an article and put it into practice. Virtual money has no central server for transfer control since everything is founded on the basis of peer-to-peer communication.

This is a phenomenon that governments and banks could not increase or decrease its value (Seyyed Hosseini & Doaei, 2014). Because it has intangible nature, virtual money is regarded as a kind of digital money, and its distinction is that digital money represents banknotes, which its mechanism has solely become non-physical. This is while virtual money has nothing to do with bank money and is a novel currency with a unique mechanism backed by solving mathematical algorithms. However, digital money is sometimes employed in scientific articles rather than virtual money, for the term "virtual" evokes a negative concept as opposed to "real" (Chuen, 2015).

2.3 Cryptocurrency

Cryptocurrency is a type of digital money that utilizes cryptography for its own security. Because of this security feature, counterfeiting in cryptocurrencies is difficult (Bouri et al., 2019).The characterization of cryptocurrency is that its issuance is not in the hands of the supervisory authority, and this independent management theoretically prevents governments from interfering in financial matters (Härdle et al., 2020).The "anonymity" nature of cryptocurrency transactions has caused this kind of currency to be highly welcomed by money launderers, criminals, and tax evaders. The first type of cryptocurrency that attracted public attention was Bitcoin, which was introduced in 2009. The success of Bitcoin led to the emergence of rival cryptocurrencies such as Litecoin (LTC), Namecoin (NMC), and Pepcoin (PCN). Cryptocurrency makes the possibility of the transfer of money between the parties to a transaction easier (Caporale et al., 2018).

This facility is because of using public and private keys for security purposes. The transfer of funds is done by paying the minimum processing fee and exempts users from paying various types of fees to banks and financial institutions in network transfers

(Haryanto et al., 2020). It is worth mentioning that one will lose all his/her bitcoins in the absence of a backup of the contents of the computer with a computer crash; ultimately, as prices are determined on the basis of supply and demand, the exchange rate of cryptocurrencies has many fluctuations relative to other currencies (Lo & Wang, 2014).

Declaring cryptocurrencies and challenging the traditional monetary system in the world, many opportunities and ideas were presented to policymakers, economists and entrepreneurs. The development of cryptocurrencies has put pressure on all stakeholders to reconsider the fundamental idea of a financial instrument's ability to be used as money (Dyhrberg, 2016). Exploring Bitcoin investment opportunities as one of the most well-known cryptocurrencies and the first cryptocurrency introduced to the world financial and monetary world by Satoshi Nakamoto in 2008 can be a window to diversify the investment portfolio of governments, legal entities and to be considered natural and legal persons in different countries, including Iran.

2.3.1 Bitcoin

Experts (e.g., analysts) can be information intermediaries who perform dual roles in information discovery and information interpretation. The value of expert predictions is studied extensively for stocks (Ramnath et al., 2008), for commodities, such as gold, silver and for exchange rates (Pierdzioch & Rulke, 2015). For these asset classes, forecasts prove to be informative with respect to future price movements, thereby improving market efficiency (Davies & Canes, 1978).

Cryptocurrencies represent an emerging asset class (Härdle et al., 2020) with Bitcoin being the largest of all cryptocurrencies. The characteristics of Bitcoin are significantly different from traditional securities (Klein et al., 2018). Bitcoin is an unregulated, decentralized, peer-to-peer cryptocurrency enabling users to process transactions through digital units of exchange. The market capitalization of Bitcoin was about USD 690 billion in May 2021 and is thereby the largest of all cryptocurrencies, representing around 46 percent of the total market capitalization of all cryptocurrencies. Despite its relatively small market capitalization in comparison to traditional investment assets, research shows various kinds of investors could benefit from augmenting their portfolios with Bitcoin if liquidity is taken into account (Petukhina et al., 2021; Trimborn et al., 2019; Trimborn & Li., 2021; Gerritsen et al.; Walther, 2021).

The global financial crisis, which occurred in 2008 following the inadequacy of government institutions such as the Federal Reserve System (central banking system of the United States of America) and other US financial institutions, led people to seek more seriously the rejection of central institutions, particularly the dominance of the dollar and unsupported money (Crotty, 2009). This distrust of government institutions in a period when the United States refused to give gold for every dollar and completely denied the support of dollars, which was gold, had previously peaked (as did the Austrian school, which believed that the gold monetary base should be returned); however, the United States was able to end the affair with the coordination of Saudi Arabia and the sale of oil merely in dollars.

Nevertheless, after the crisis of 2008, this time an anonymous person introduced a completely private currency to the world in 2009 without the need for a regulatory, intermediary, and central institution called Bitcoin (a kind of cryptocurrency). "Bitcoin" is regarded as an innovation in the domain of e-commerce and finance, which has spread during the past five years (Gandal et al., 2018). Indeed, Bitcoin is an Internet innovation with the function same to unprotected money, whose value in global markets has enhanced from a few hundred dollars to thousands of dollars over the years.

3 Methodology

The cryptocurrency of different currencies and their use are new concepts in economics and financial markets. Few studies have been done to identify the nature and mechanism of operation and their various consequences in various domestic and foreign fields, so it is considered a new topic in Iran, which in this study by studying the main concepts such as: electronic money, money Virtual, digital currency and bitcoin as the core of the study Using qualitative research, we seek to examine the concepts, functions and infrastructure of the use and prevalence of bitcoin, which is a kind of cryptocurrency.

This is applied developmental research by purpose and is exploratory research by the method of data collection and analysis. The survey is conducted qualitatively, and the research method is descriptive-analytical. Thus, this study deals with the description of the existing conditions, and it attempts to identify and analyze the relevant variables by developing a causal model.

The population of this study comprised academic experts including university professors specializing in the fields of cryptocurrencies, e-commerce, finance, and international finance, and empirical experts constituting managers and experts of monetary and financial organizations (banks, stock exchanges). The choice of samples is of the saturation level and purposive type. In this method, the researcher makes a purposeful selection of the intended sample of the research, by knowing the target community of the research and by awareness. It should be noted that the interviews continue until a new component or discussion is raised; in other words, theoretical saturation is achieved. Hence, with regard to the principles of qualitative methods, eventually, 18 experts were chosen for the interview. The respondents' demographic characteristics are illustrated in table 1.

Table 1

Individual characteristics of the interview respondents

Row	Age	Gender	Education Level	Work Experience	Job Position
1	41	Male	Master's degree	15 years	Bank manager
2	40	Male	Master's degree	10 years	University professor
3	67	Male	PHD	32 years	University professor
4	50	Male	Master's degree	25 years	Bank manager
5	38	Male	Master's degree	15 years	Bank manager
6	35	Male	PHD	7 years	University professor
7	36	Male	PHD	7 years	Expert of financial organization
8	46	Male	Master's degree	21 years	Advisor of financial organization
9	45	Female	Master's degree	10 years	Expert of financial organization

Row	Age	Gender	Education Level	Work Experience	Job Position
10	36	Male	PHD	15 years	Expert of financial organization
11	45	Male	Master's degree	23 years	Bank manager
12	33	Male	Master's degree	2 years	Expert of financial organization
13	42	Male	Master's degree	10 years	Expert of financial organization
14	36	Male	Master's degree	7 years	Stock Financial Manager
15	33	Male	Master's degree	2 years	Stock Financial Manager
16	50	Male	PHD	25 years	University professor
17	41	Male	PHD	20 years	Financial manager
18	35	Female	PHD	7 years	University professor

The methods of data collection in this research are library and field. The tool used in the field method is interview. In the interview, experts are asked questions and the qualitative part is analyzed by recording the interview.

In this survey, data analysis was performed as a qualitative analysis with the assistance of the grounded theory (GT). Grounded theory builds checks into the research process that contribute to its quality, such as engaging in focused coding. Simultaneously, using focused coding helps you to expedite your analysis and streamline your subsequent data collection to gather targeted data that answer questions in your emerging analysis (Charmaz & Thornberg, 2021). In order to extract data from the interviews, there are two techniques of microanalysis and key point analysis. Strauss and Corbin (1994) recommend that coding should be conducted through microanalysis.

In this type of analysis, the data is analyzed word for word, and the meanings found are encoded in the words or open groups of words. This approach has two bugs; the first is that it is time-consuming and the second is that it sometimes leads to ambiguity and confusion. Moreover, the division of data into words sometimes results in becoming defiled of the nature of the analysis, and there is a kind of skepticism about what should be searched in the text. In accordance with this method, the main network that is ultimately identified in six networks of central category, contextual conditions, causal conditions, intervening conditions, strategies, and consequences, and the identified components were placed in these six main networks.

4 Results

4.1 Implementation of Grounded Theory (GT) Method

In accordance with the steps of the Grounded Theory (GT), the results of open coding, axial coding, and selective coding were achieved in the form of 6 main networks of grounded theory method, i.e., central phenomenon, causal conditions, contextual conditions, intervening conditions, strategies, and consequences. The results are mentioned in the following.

4.1.1 Results of Open Coding

In open coding, the content of all interviews was implemented and written firstly and then their open coding was done by key point coding method. Open coding was performed in three stages including, first stage, second stage, and third stage. At each stage, the number of data decreases compared to the previous stage (Markey et al., 2020). Thus, after merging similar codes, a total of 77 codes were extracted from the open coding of the third stage. Among these codes are increasing economic value, cryptocurrency, e-commerce innovation, information technology, and digital currency protection law.

In the next step, axial coding was performed for the classification of open coding

4.1.2 Results of Axial Coding

Axial coding is the second step of analysis in the foundation data (Grounded Theory) method. The purpose of this step is to establish the relationship between the classes produced in the open coding step (Creswell & Cheryl,1998). This operation is based on the paradigm model and helps the theorist to simplify the theory-making process. The code generated in the previous step is linked to each other by creating communication networks between the codes, a process that is analyzed by the data obtained from open coding. Therefore, the purpose of axial coding is to sort the relationship between each concept (Sun, 2011). While establishing connections on the network, it is necessary to examine how these categories relate to each other.

This step was done by networks formation to create connections between concepts, categories, and components in accordance with table 2. According to the results of axial coding, finally, six main networks, 14 main components, and 77 sub-components were identified as multiple infrastructures for the use of cryptocurrencies (Bitcoin). It is worth mentioning that contents are briefly expressed in this table because of the large volume of results gained from axial coding.

Table 2

Axial coding results

Network	Main component	Sub-component
Central phenomenon	Economic value	Store of value
		Increasing economic value
	Use of Bitcoin	Cryptocurrency
Contextual conditions	Technology infrastructure	Business infrastructure
		Knowledge and skill
		Organizational architecture
	Law and regulation infrastructure	Virtual Currency Consumer Protection Act
		Legal monitoring and supervision
Casual conditions	Economic infrastructure	Economic growth
		Infrastructure financing
		Lowering management costs
	Social infrastructure	Social welfare
		Mental health of the community
		Social participation

Network	Main component	Sub-component
Intervening conditions	Political infrastructure	Sanctions
		Exchange rate fluctuations
Strategies	Attention to the target market	Right understanding of the market needs
		Ecosystem of business models
	Training	Information technology (IT) training
		E-money training
	Financing	Empowerment through financial statements
		Supply chain financing
	Development and implementation of strategy	Team and teamwork
		Providing and raising enough capital
Consequences	Transparent information	Hiding of personal information
		Bitcoin security
	Freedom of payment	Sending and receiving money all over the world
		Possibility of 24-hour support
	Decline of costs	Eliminating bank fees
		Lower costs relative to credit cards

4.1.3 Results of Selective Coding

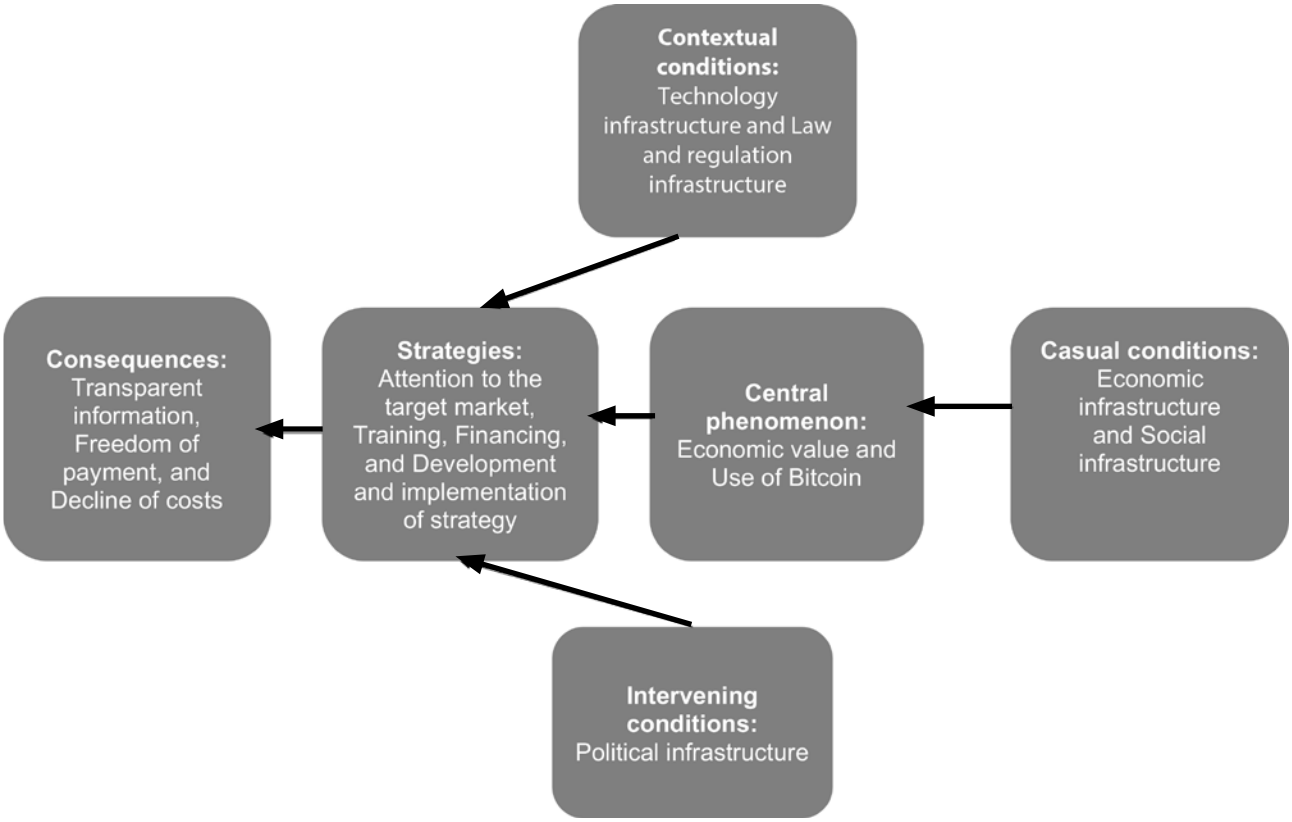
Selective coding is the process of integrating and improving categories. The point to be considered at this stage is that if the purpose of the research is to theorize, the findings should be presented in the form of related concepts and not just a list of topics. It is important to note that there is always more than one way to show relationships. In order to achieve the desired integration, it is necessary for the researcher to set the main line of the subject and describe the main line of the story with commitment. In selective coding, the researcher discovers a principle and regularly associates the main category with other categories (Dunn, 2011). Selective coding results, i.e., providing a multiple infrastructure model for the use of cryptocurrencies (Bitcoin), are based on figure 1.

As is evident in the figure above, the multiple infrastructure model for using cryptocurrencies (Bitcoin) consists of 6 main networks and 14 components.

The results obtained from the model show that in order to achieve outcomes such as freedom of payment and cost reduction, it is necessary to put effective strategies such as training and attention to the target market on the agenda, of course, considering the underlying conditions such as Technological infrastructure and interventionist conditions such as political infrastructure in Iran is very necessary.

Figure 1

Multiple infrastructure model



4.2 Validation of Qualitative Data

Validation of the data in the grounded theory (GT) process is carried out in three ways. In this survey, these methods were exploited. These three approaches include:

- Enhancing the transparency in the research process: Validation is elaborately achieved by increasing the transparency of the research process through the distribution of the steps and phases taken, the techniques and instruments exploited by the sections where the information was collected. Regarding the transparency that exists in the information gained in the three stages of open coding, axial coding, and selective coding, so the research data validity is confirmed by the research process transparency.

- Providing the results to the participants: Among the principles of qualitative methods, especially the grounded theory is its participation-oriented nature. In this investigation, the researcher did not make any attempt to lead the results in a particular direction, and all the achieved results were the interviewees' responses. For validation of the grounded theory method, the findings were provided to the interviewees, and all the interviewees confirmed the research findings.

- Continuous comparison of results with raw data: At each stage of the higher-level coding, the gained data were compared with the data of the first stages of interview and open coding so that the validity of the higher coding data is confirmed.

5 Discussion and conclusion

At present, many countries such as the United States, Canada, Australia, and China legalize the exchange of cryptocurrencies. Among the essential reasons for the widespread use of cryptocurrencies are the unique advantages they provide to users. Some of these benefits are the speed and efficiency of payments, especially overseas payments, as well as the elimination of additional operating costs received by intermediaries.

The pervasiveness of these currencies has caused Bitcoin, as one of the most famous ones, to come into the transactions of Iran's people. This is while cryptocurrencies are one of the current issues of the country and governance, and policy-making institutions of Iran need to enact laws and regulations regarding the exploitation of these currencies, like other countries. Hence, this study intended to present a multiple infrastructure model for the use of cryptocurrency (case study: Bitcoin).

This research was done by qualitative research method and grounded theory (GT). On the basis of the gained results, six main networks, 14 main components, and 77 sub-components were achieved as multiple infrastructures for the utilization of cryptocurrencies (Bitcoin).

The results of this survey indicated that the technology infrastructure and the law and regulation infrastructure affect the utilization of Bitcoin as contextual conditions. Technology infrastructure should be taken into account in using information technology, having the skills of the workforce and managers, enjoying knowledge, and using the Internet of electronic devices and computers. Thus, using electronic devices and technology infrastructure, Bitcoin could be employed. Besides, the other critical factor for the use of Bitcoin is enacting rules and licenses to use Bitcoin since bitcoin does not exist as an official currency in Iran. Hence, generating technology infrastructure and law and regulation infrastructure can provide the necessary grounds for using bitcoin in the country.

Economic infrastructure and social infrastructure can affect the utilization of Bitcoin as causal conditions. Bitcoin will have more functionality as a digital and acceptable currency in the community in the event that financing is provided for the purchase of the necessary devices and there is bitcoin acceptance in the community.

Political infrastructure, including sanctions, policies, and government policies, affects the utilization of Bitcoin as the political condition. In Iran, political infrastructure usually acts as a barrier to the use of bitcoin. Thus, for greater utilization of Bitcoin, the political situation of the country and relations with other countries should be so that the political problems for using bitcoin are minimized.

For the utilization of Bitcoin and its deployment in the community, the necessary training should be provided to the people who want to work in this domain. Because of the progression of technology in the present era, cryptocurrencies and electronic money (e-money) should be trained in schools and universities so that individuals in the community can do their buy and sell and trade with digital money in the future years. Hence, strategies and programs in this respect should be formulated to enhance using bitcoin in the country. Financing people and financial aid such as providing bank loans can also be a major contribution to use bitcoin.

Ultimately, the consequences (outcomes) of implementing and using Bitcoin are freedom of payment, transparent information, and cost reduction, leading to increased international trade, ease of payment, increased corporate sales, the possibility of exchange with all countries of the world, and so on. Whereas the payment of so-called provider and recipient fees, as well as occasional deposit fees between cryptocurren-

cy exchanges, is considered a standard, Bitcoin users are not required to pay bank charges in the traditional way associated with Fiat currencies. This means no account maintenance or minimum balance fee, no overdraft fee, and no return deposit fee relative to other cryptocurrencies. All final transactions are available for viewing using blockchain technology; nevertheless, personal information is confidential. The user's public address is what is visible to all users but personal information is not related to this issue. At any time, anyone can approve transactions in the Bitcoin blockchain. The Bitcoin protocol cannot be manipulated by any person, organization, or government that this is due to the security gained from bitcoin cryptography.

5.1 Recommendations and limitations of the research

Taking into account that training is introduced as one of the strategies for using Bitcoin, it is proposed that the utilization of Bitcoin be trained in schools and universities for different people in the community. It is also necessary that the legal barriers to the use of bitcoin in the country be reconsidered. By offering low-interest loans, banks can have a major contribution to use bitcoin and promote it in the country. It is suggested that the necessary strategies and planning for the use of bitcoin be carried out by the government and the private sector to spread bitcoin in the country. Ultimately, because of the requirement for coordination with the world of the present age, the necessary infrastructure for the implementation and utilization of bitcoin in the country needs to be executed.

The most important consequences of creating the necessary infrastructure in the use of bitcoin are: expansion of international transactions to develop e-commerce, high liquidity, cost reduction through direct and unmediated exchange, and most importantly security Exclusive.

Considering that grounded theory is exploited in this study to provide a multiple infrastructure model for the utilization of cryptocurrencies (Bitcoins) and given that it is assumed that studies of qualitative research represent a large community, we faced the challenge of being constrained in terms of conclusions. Hence, it was attempted the impact of this limitation on the conclusion to be declined by providing rich descriptions in connection with the subject of research. Furthermore, this research was a cross-sectional study; therefore, it makes conclusions about causality (causal relationship) difficult.

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