

Impact of Using Crypto Currency to Maintain Cyber Security Blockchain Innovations and Applications

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Abstract: Purpose: Crypto currency has been identified as a form of currency which can be transferred via a “Digital platform”. These “crypto currencies” are presented in the form of “a large amount of data” which is leveraged through networks. The key gaps and lack of strong authentication of these networks, data and transactions between the users have resulted in the accessibility to “Hackers”. Methodology: A deductive approach has been used in order to generate different types of hypotheses and variables from the previous studies. Findings: As a result, there has been a huge increase in the number of “malicious actions, phishing attacks, cyber threats, scams, and financial frauds”. Henceforth, the growth of “crypto currency” has enforced companies to develop and innovate “Block chain applications” in order to increase the integrity and security of transactions. Implications: Cyber security has been playing a huge in order to improve the “transparency, authentication, and reliability” of the data and networks. The main of the research is to critically analyse the impact of using “Crypto currencies” in order to achieve “cyber security, maintain “Block chain innovations” and secure other technological applications”. Originality: The originality of the study is fully authentic.

Keywords: Crypto currency, cyber security, Block chain, cyber threats, transparency, authentication

1. Introduction

“Crypto currency” can be explained as a “digital currency” which also has been used across the world as an alternative method of payment with the help of encrypted algorithms.

As per the remarks of Ramos *et al.* (2022), “encryption technologies” also has been used in crypto currencies so that they can be used both as a “currency and as a virtual accounting system”.

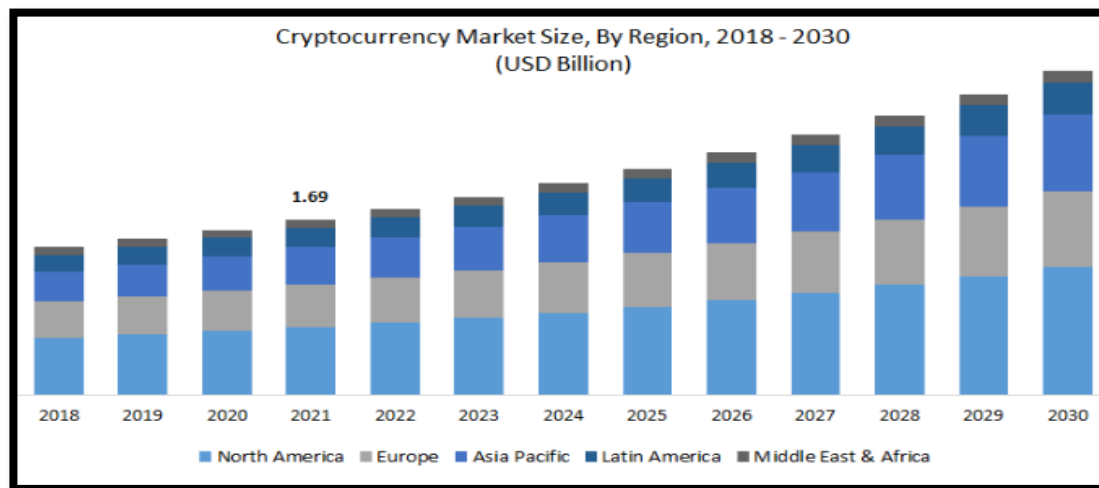


Figure 1: “Market of crypto currency” on a global scale from July 2018 to March 2030

(Source: Academia, edu, 2023)

This above figure has focused on the growing market of crypto currencies in various countries across the world which has been estimated to be “1.69 billion US dollars”. Moreover, the “growth rate” of crypto currency also has been accounted to be at the rate of 7.2% CAGR. However, the main purpose of this growth is that “block chain technologies and application” has been widely adopted for the security and protection of the transactions of crypto currencies.

Rationale

There are various challenges which have been raised in the use of Crypto currencies such as “lack of understanding, lack of regulatory frameworks, volatility, security risks, Transaction Irreversibility, Uncertainty Regarding Taxation and scalability issues”. As per the reviews of Choithani *et al.* (2022), there has been a significant increase in the “fraud cases, misleading transactions and theft of digital currencies” across the world due to a lack of proper regulatory frameworks.

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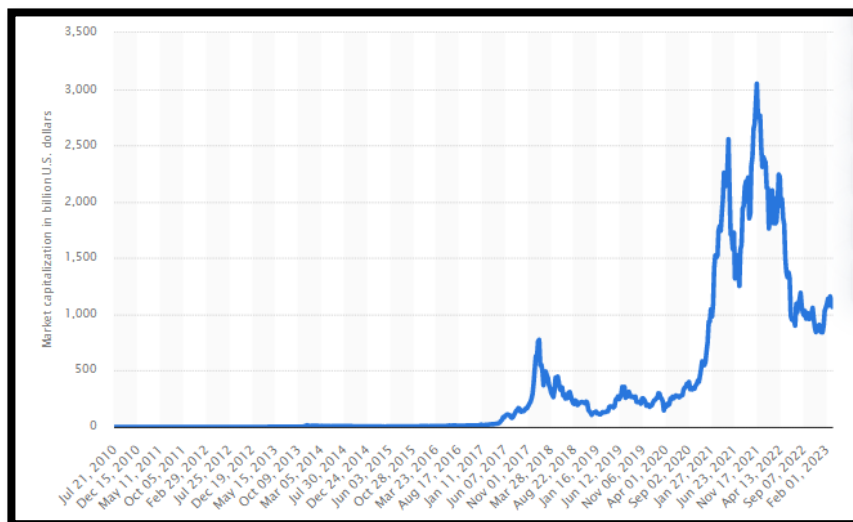


Figure 2: Overall “market capitalization of cryptocurrency” from July 2010 to March 2023

(Source: statista. com, 2023)

The above figure has shed light on the overall “market capitalization” of “crypto currencies” from 2010 to 2023. However, there has been significant growth in the “market capitalization” of “digital currencies” which has been reported to be “250.82 billion US Dollars” to “869.37 US Dollars”. Moreover, the market capitalization also has been estimated to be “1851.2 billion US dollars” in September of 2021.

Objectives

- To provide a broad scope on the use of “Crypto currency” for enhancing the security of “Block chain innovation, and other applications”
- To critically evaluate the challenges which have been faced by the “Business organization” in order to adopt “Block chain applications and innovative tools”
- To provide a set of strategies which can be used by the companies to increase the effectiveness of Crypto currency, Block chain applications and innovations”.

2. Literature Review

Impact of Crypto currency on “Block chain Technologies and Cyber security”

“Crypto currency” has been leading to a positive impact on the adoption and innovation of “Blockading technologies and cyber security. As per the views of Deshmukh *et al.* (2022), “crypto currency” has imposed several threats on the users, it has enforced the development of Block chain. In this same context, “block chain technologies and other innovative application” also has been playing a huge role to protect these transactions.

In addition to this, a “block chain innovation” implies that it is encrypted which is used for maintaining public and private data in order to secure and protect “digital assets” such as Crypto currency. besides that, “Block chain” allows users to send money or make a transaction with strong protection and high security of their networks., In contrast to it, cyber security also has been leveraged by crypto users in rider to eliminate the threats of “cyber threats” and secure their data”.

Challenges of using “crypto currency”

The increased use of crypto currencies also has been giving rise to several cyber threats. As argued by the study of Bhardwaj *et al.* (2022), financial transactions” is not governed, monitored or controlled by a “regulatory authority”, crypto currency has been leading to the growth of “cyber threats”. Moreover, the use of “crypto currency” has also given rise to the growth of “ illegal trading platforms” which are used for financial frauds by the cyber criminals. On the other hand, “phishing attacks” has been identified as a technique of the hackers which makes the users click on malicious websites by the crypto users in order to steal their “digital assets”.

Strategies to improve “Crypto currency and Block chain”

Crypto users need to make sure that they are well aware and have in - depth insights about “crypto currency” in order to make safe transactions. Besides that, the government of the UK also need to adopt various policies, and regulations in order to strictly regulate, monitor and control the transactions and punish cyber criminals. As reflected from the views of Fahmi *et al.* (2022), users also need to avoid clicking and trusting unknown parties without proper v verification of their profiles as these websites are malicious and a trap for the users. In addition to this, the government of the UK also need to develop a “regulatory framework” for addressing the “trading of illegal platforms” and tools by hackers. Furthermore, the “Blockading application” also has been developed in a way which would not allow access to third parties.

Theoretical Framework

The “Short Interest Theory” also can be adopted which has developed for investing in the “stock markets. As per the ideas of Sakas *et al.* (2022), “short interest” has been considered as the precursor when the value of “crypto currency” would be rising, however, the greater the interest would be, the risk would Laos get higher. On the other hand, “a high short interest” implies that due to lack of accuracy and transparency, most of the investors would be selling the stocks. This is mainly because all traders and investors use

various tools to generate predicted results. As a result, it helps traders to make a profitable investment. In addition to this, the “short sellers” also create pressure of huge supplies and buying in order to reduce the value of “crypto currencies”. The study of Yu *et al.* (2022) noted that” Short Interest Theory” also focuses on the buying and selling decisions of crypto currencies which has been resulting in the actions of threats.

3. Methodology

Research Approach

In this research, a deductive approach has been used in order to generate different types of hypotheses and variables from the previous studies. A “deductive approach” would help the study to focus on the” existing literature reviews.

Research Philosophy

The “Positivism” philosophy has been adopted for the study as it allows researchers to adhere to the scientific viewpoint of the data. Moreover, “positivism philosophy” also allows research to provide only “factual, scientific and truthful” data which would provide an objective perspective to the entire study.

Research design

“Descriptive design” also has been followed in this research so that it can develop a better understanding of the “situation, phenomena and entire population”. “Descriptive design” also allows the study to use different kinds of “techniques, approaches and procedures”.

Sample size and technique

The research has also surveyed the “data collection process”. Besides that, the total number of members who would be

involved with this research is 50. A “simple random sampling” technique also would be used in the study to determine the participants from the total population.

Data collection

In this research, “primary methods” has been used for the “data collection process” of the study. However, the strategy of the research has been to extract “quantitative data” directly from primary sources as per the reviews of Tibrewal *et al.* (2022), the main purpose of using a “primary method” is that it helps the study to gather “real, universal and truthful data”. As a result, these research methods have also helped to enhance the “validity, and reliability” of the data”. In addition to this, a “questionnaire” also has been prepared which would be used as an “instrument” or a tool in the survey. However, the questionnaires would be provided to the participants with the help of “Google Forms”.

Data analysis

Moreover, this research has also used SPSS to analyse the “quantitative data”. Moreover, this research has also conducted an “F test, T - test, Chi - Square test, sample test and correlation analysis” for the analysis of the data. This research has also used google forms in order to generate the responses of the participants. The main purpose of using SPSS is to determine the influence of independent variables on the dependent variables (Garg, 2022).

4. Results

Demographic Analysis

Sample Test

Table 1: Paired Sample Test

		Paired Differences					t	df	Sig. (2 - tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	What is your gender? Do you think that "Crypto currency" has a positive effect on the development and innovation of "Blockading technologies and cyber security?"	- 1.180	1.004	.142	- 1.465	- .895	- 8.312	49	.000
Pair 2	What is your age? Do you consider that use of crypto currencies has been increasing the number of cyber threats?	- .340	1.272	.180	- .701	.021	- 1.891	49	.065

This above table has represented the differences in the relationship between the two variables. SPSS has been used in this research in order to compare the relationship between two variables. The “mean value” of the first pair from the sample test has been estimated to be “ - 1.180”. Moreover,

the “standard deviation value” of the first pair is “1.004”. The mean value of the second pair also has been estimated to be “0.23”. Besides that, the sample test has also developed a better understanding on the effectiveness and relationship of both the hypothesis.,

Table 2: Correlation Test

Statistical Analysis										
		What is your gender?	What is your age?	Do you think that "Crypto currency" has a positive effect on the development and innovation of "Block chain technologies and cyber security?'	Do you believe that "Block chain" allows users to make safe and secure transaction?'	Do you consider that use of crypto currencies has been increasing the number of cyber threats?'	Do you agree that by clicking on malicious websites, it gives accessibility to the third parties and Hackers?'	Do you think that "Block chain applications" has been playing a key role to increase the integrity and security of transactions?'	Do you believe that the growth of fraud cases, hacking, and theft of digital currencies" has been due to the growth of crypto currency?'	Do you consider that "regulatory framework" is very important for the crypto users in order to eliminate the "trading of illegal platforms" and tools by hacker?'
What is your gender?	Pearson Correlation	1	.170	.197	-.030	.043	-.204	-.180	.279*	-.078
	Sig. (1 - tailed)		.118	.085	.418	.384	.077	.106	.025	.295
	N	50	50	50	50	50	50	50	50	50
What is your age?	Pearson Correlation	.170	1	.349**	.367**	.294*	.202	.244*	.193	.032
	Sig. (1 - tailed)	.118		.006	.004	.019	.079	.044	.089	.412
	N	50	50	50	50	50	50	50	50	50
Do you think that "Crypto currency" has a positive effect on the development and innovation of "Blockading technologies and cyber security?'	Pearson Correlation	.197	.349**	1	.422**	.274*	.057	.100	.122	-.078
	Sig. (1 - tailed)	.085	.006		.001	.027	.348	.244	.199	.295
	N	50	50	50	50	50	50	50	50	50
Do you believe that "Block chain" allows users to make safe and secure transaction?'	Pearson Correlation	-.030	.367**	.422**	1	.095	.199	.216	.275*	.051
	Sig. (1 - tailed)	.418	.004	.001		.255	.083	.066	.027	.363
	N	50	50	50	50	50	50	50	50	50
Do you consider that use of crypto currencies has been increasing the number of cyber threats?'	Pearson Correlation	.043	.294*	.274*	.095	1	.200	.138	.075	.039
	Sig. (1 - tailed)	.384	.019	.027	.255		.082	.170	.301	.394
	N	50	50	50	50	50	50	50	50	50
Do you agree that by clicking on malicious websites, it gives accessibility to the third parties and Hackers?'	Pearson Correlation	-.204	.202	.057	.199	.200	1	.500**	.271*	.097
	Sig. (1 - tailed)	.077	.079	.348	.083	.082		.000	.028	.252
	N	50	50	50	50	50	50	50	50	50
Do you think that "Block chain applications" has been playing a key role to increase the integrity and security of transactions?'	Pearson Correlation	-.180	.244*	.100	.216	.138	.500**	1	.286*	.043
	Sig. (1 - tailed)	.106	.044	.244	.066	.170	.000		.022	.382
	N	50	50	50	50	50	50	50	50	50
Do you believe that the growth of "fraud cases, hacking, and theft of digital currencies" has been due to the growth of "crypto currency"?'	Pearson Correlation	.279*	.193	.122	.275*	.075	.271*	.286*	1	.315*
	Sig. (1 - tailed)	.025	.089	.199	.027	.301	.028	.022		.013
	N	50	50	50	50	50	50	50	50	50
Do you consider that "regulatory framework" is very important for the crypto users in order to eliminate the "trading of illegal platforms" and tools by hacker?'	Pearson Correlation	-.078	.032	-.078	.051	.039	.097	.043	.315*	1
	Sig. (1 - tailed)	.295	.412	.295	.363	.394	.252	.382	.013	
	N	50	50	50	50	50	50	50	50	50

*. Correlation is significant at the 0.05 level (1 - tailed).

**). Correlation is significant at the 0.01 level (1 - tailed).

This table has focused on "Pearson's correlation". The correlation test has been performed in order to measure the value of all the variables. If the research generates a less value than "0.05nb", a significant relationship would be

generated between the variables. Moreover, it has been observed from the correlation test there is a positive relationship between age, gender and use of cryptocurrency. In the correlation test, the one tailed factor has been used.

Table 3: T - Test

One - Sample Test

	Test Value = 0					
	t	df	Sig. (2 - tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
What is your gender?	3.280	49	.002	.180	.07	.29
What is your age?	9.254	49	.000	1.220	.96	1.48
Do you think that "Crypto currency" has a positive effect on the development and innovation of "Blockading technologies and cyber security?"	9.566	49	.000	1.360	1.07	1.65
Do you believe that "Block chain" allows users to make safe and secure transaction?	9.430	49	.000	1.400	1.10	1.70
Do you consider that use of crypto currencies has been increasing the number of cyber threats?	9.342	49	.000	1.560	1.22	1.90
Do you agree that by clicking on malicious websites, it gives accessibility to the third parties and Hackers?	8.161	49	.000	1.420	1.07	1.77
Do you think that "Block chain applications" has been playing a key role to increase the integrity and security of transactions?	7.972	49	.000	1.340	1.00	1.68
Do you believe that the growth of "fraud cases, hacking, and theft of digital currencies" has been due to the growth of "crypto currency"?	10.253	49	.000	1.580	1.27	1.89
Do you consider that "regulatory framework" is very important for the crypto users in order to eliminate the "trading of illegal platforms" and tools by hacker?	8.012	49	.000	1.300	.97	1.63

This have table has focused on the results of T - test. The main purpose of performing T - test is that it has helped the study to "comparing two different mean values". Besides that, the value of one sample T - test has been generated to be "3.280". On the other hand, the mean differences have

been achieved to be 1.220. In this research, it has been found that the correlation value been significant at the level of 0.05 and 0.01. Majority of the members involved with this survey also has acknowledged which has been reflected in the - Test.

ANOVA

Table 4: F - Test

		Sum of Squares	df	Mean Square	F	Sig.
What is your gender?	Between Groups	.106	3	.035	.223	.880
	Within Groups	7.274	46	.158		
	Total	7.380	49			
What is your age?	Between Groups	4.028	3	1.343	1.602	.202
	Within Groups	38.552	46	.838		
	Total	42.580	49			
Do you think that "Crypto currency" has a positive effect on the development and innovation of "Blockading technologies and cyber security?"	Between Groups	4.303	3	1.434	1.459	.238
	Within Groups	45.217	46	.983		
	Total	49.520	49			
Do you believe that "Block chain" allows users to make safe and secure transaction?	Between Groups	2.783	3	.928	.833	.482
	Within Groups	51.217	46	1.113		
	Total	54.000	49			
Do you consider that use of crypto currencies has been increasing the number of cyber threats?	Between Groups	1.370	3	.457	.314	.815
	Within Groups	66.950	46	1.455		
	Total	68.320	49			
Do you agree that by clicking on malicious websites, it gives accessibility to the third parties and Hackers?	Between Groups	8.563	3	2.854	2.001	.127
	Within Groups	65.617	46	1.426		
	Total	74.180	49			
Do you think that "Block chain applications" has been playing a key role to increase the integrity and security of transactions?	Between Groups	2.724	3	.908	.628	.601
	Within Groups	66.496	46	1.446		
	Total	69.220	49			
Do you believe that the growth of "fraud cases, hacking, and theft of digital currencies" has been due to the growth of "crypto currency"?	Between Groups	6.800	3	2.267	2.029	.123
	Within Groups	51.380	46	1.117		
	Total	58.180	49			

This above table has provided a broad scope on the results and value if F - Test. Moreover, the F - test has been achieved to be mean square of 0.223 for the first two groups. Furthermore, the mean sure of age has been found to be "1.343". The derived results from, the F test has reflected that the "null hypothesis" has been rejected. Whereas, an

"alternative hypothesis has been accepted by the F - Test. Besides that, the variables are also sharing a significant relationship with each other the dependent and independent variables.

Table 5: Chi - Square Test**Chi - Square Tests**

	Value	df	Asymp. Sig. (2 - sided)
Pearson Chi - Square	3.410 ^a	2	.182
Likelihood Ratio	4.130	2	.127
Linear - by - Linear Association	1.896	1	.169
N of Valid Cases	50		

a.3 cells (50.0%) have expected count less than 5. The minimum expected count is.36.

Chi - Square Tests

	Value	df	Asymp. Sig. (2 - sided)
Pearson Chi - Square	1.228 ^a	3	.746
Likelihood Ratio	1.585	3	.663
Linear - by - Linear Association	.090	1	.765
N of Valid Cases	50		

a.6 cells (75.0%) have expected count less than 5. The minimum expected count is.36

Chi - Square Tests

	Value	df	Asymp. Sig. (2 - sided)
Pearson Chi - Square	2.275 ^a	3	.517
Likelihood Ratio	3.255	3	.354
Linear - by - Linear Association	2.045	1	.153
N of Valid Cases	50		

a.6 cells (75.0%) have expected count less than 5. The minimum expected count is.54

Chi - Square Tests

	Value	df	Asymp. Sig. (2 - sided)
Pearson Chi - Square	1.829 ^a	3	.609
Likelihood Ratio	2.662	3	.447
Linear - by - Linear Association	1.581	1	.209
N of Valid Cases	50		

a.6 cells (75.0%) have expected count less than 5. The minimum expected count is.36

Chi - Square Tests

	Value	df	Asymp. Sig. (2 - sided)
Pearson Chi - Square	7.393 ^a	3	.060
Likelihood Ratio	5.951	3	.114
Linear - by - Linear Association	3.813	1	.051
N of Valid Cases	50		

a.5 cells (62.5%) have expected count less than 5. The minimum expected count is.36.

This table shed light on the results and value of the “Chi - square test”. The “Pearson Chi - Square” value has been estimated to be “3.410a”. On the other hand, the “Pearson Chi - Square' value” also has been generated to be “3.410a” for another variable. In addition to this, the primary goal of using a “chi - square test” is to determine the influence of independent variables on the independent variables. The minimum expected value has also been generated to be 0.54. The results of this test have a; also reflected that most of the participants has agreed to the viewpoints.

5. Conclusion

Thus, it can be concluded that there has been a significant increase in the adoption of “Block chain innovations and applications” due to the imposed threats of “Crypto currency”. “Block chain technologies” has been largely used for increasing the security and protection of “transactions in crypto currency” such as “Bit coin”. In addition to this, the main purpose for “block chain security” is to make sure that all the data, information, assets, systems and networks of the users have been secured and protected. As a result, this process creates trust between the two parties while also building a “high level of data integrity”.

In this same context, the users also have been determined to decentralise their storage which allows the “Block chain application” to encrypt every piece of like a complete puzzle which reduces the possibility of leveraging by the hackers. In such a way, the use of “crypto currency” also has to result in a positive impact on the development and innovation of “Cyber security and Block chain applications”. In addition to this, business organizations also need to focus on improving the security and protection of “data and networks” with the innovation of “Block chain technologies and other applications.

Author’s Contribution

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Conflicts of Interest

This is to bring to your kind information that this research work has no conflicts of interest.

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