An Investigation In Understanding The Role Of Blockchain Challenges For Internet Of Things On Business Models Using Regression Analysis

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Abstract

The application of blockchain technology enable the organisation in creating new means of enhancing economic activities, support in reducing operational expenses and safety of data and information. The impact of these technologies has supported the management in increasing more investments in these technologies and thereby creating new business models which will sustenance in growth and development in the long run. The application of blockchain technology aids the management in creating better value creation for all the stakeholders, these solutions enable in creating decentralised approach which will enhance the usage of the contracts and enable the members of the system to get the automated contract. The blockchain technology can support in digitising the operational activities, besides aid in reducing the cost, focus on traceability and improve the security, the blockchain supports the business model. The distributed autonomous organizations (DAO) provide better monitoring and control for the management.

The study is intended to investigating the overall analyses on the role of blockchain challenges for IoT in enhancing the business models. The researchers uses both primary and secondary data source in performing the study, the primary source data is through the use of questionnaire, the researcher will apply purposive sampling method for choosing the sample respondents. Based on the overall analysis it can be stated that application of Blockchain technology enable in creating better and sustainable business models which leads in reducing the operational cost, support in enhancing efficiency of business operations and increase the safety of data and information in the organisation.

Keywords: Blockchain technology, Internet of Things, Regression analysis and Chi square

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Introduction

In the recent decade, implementation of blockchain technology is considered to possess enhancing the business function and support the management in creating better business models. Blockchain, on a simple term, is considered as the digital technology which involves in recoding critical data and information which is highly secured and impossible to hack the system. It is a digital ledger of holding different transactions and can be distribute across the entire network through the usage of blocks [1]. The management of many companies are now focusing in implementing new and innovative business models which will remove the intermediates in the ecosystem of different security over performance. The existing blockchain solution are mainly applies in the financial industry so as to eliminate the overall purpose of reconciliation and support in

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building effective financial transactions.

However, blockchain technologies like Veri Part etc, tend to support the manufacturing industry, support in enhancing the security, enable in creating better operational excellence so as to achieve sustainable growth and development [2]. However, inspired by the enhancement in globalisation, competitors from domestic and international companies have forced the business to enhance their operations, support in adding more value to the business, increase in addressing the foundational technology. Hence, the application of blockchain technology supports in authenticating the trading of goods and services, support in realising better operational efficiency, address critical task in the organisation so as to create new business mod-els for sustainable growth and development [3].

Many companies are now realising that the impact of blockchain technology on the business model is gaining more importance, in the current business environment the major focus is on technological development as it enables the business to perform more effectively, connect with the stakeholders on a real time basis and support in free flow of information for executive decision making [4]. It has been stated that the blockchain possess the overall potential in transforming the industries in an effective manner and significantly alter various domains of the application. The current research is more focused on the critical domains like financial and accounting, support in tracking the bank transfer, enable in quick reconciliation and support in enhancing sustainable development [5]. The Internet of Things (IoT) support n sending data to the private blockchain network so as to create better records of shared data and information. Companies like Blockchain enable in supporting the management to access the data in an effective manner. The IoT enabled technology enable in tracking each information so as to prevent disputes and build the trust among all the network members.

Through the IoT each transaction is recorded effectively, also enable in placing the data block and add more secure, support in data chain which cannot be changed or altered. Moreover, the implementation of Blockchain enable in selecting the main data to be manager, customised and shared based on the access approved individuals and business partners [6]. The blockchain platform is more open and is mainly created for supporting the cloud computing world and this supports in addressing greater flexibility. Moreover, the blockchain platform is more open and provides streamlines process and creates better business models across the ecosystem [7].

Researchers has stated that the blockchain has greater potential in transforming the multiple industries and is highly significant in application towards different fields. The blockchain research has focused in providing more promise in different areas and is believed to deliver better return on the investments, support in enhancing efficiencies and increase safety and security of critical data in the organisation [8]. By incorporating the blockchain technology supports the management in enhancing the transparency, reduce the redundancy and support the management in better planning and development.

The basic aspect of the study is to investigate in understanding the role of blockchain challenges for internet of things on business models, the researchers has noted that the major determinants of using IoT based business models which impact the organisation are enhancing better return on investments in new technologies, achieve greater operational efficiencies and enhance safety and security of data and information in the organisation.

Review of Literature

The first model represents business models that enable the integration of blockchain solutions into existing value networks. For example, vendors sell blockchain solutions to improve the interoperability of business data in the Internet of Things (IoT) supply chain. Vendors increase data transparency for each participant in the blockchain ecosystem [9]. Timed traditional IoT device handhelds allow data to be tracked and controlled by all parties, preventing physical cyber attacks. Customers and users are legal entities. The device behind the blockchain is usually natural. The vendor offers a system where IoT devices can generate data and communicate with the blockchain. Usually, suppliers do not offer a standard product, but adapt it to their customers' unique business needs. Participants store all relevant device information in the blockchain [10]. Therefore, each member can continuously monitor the current status of tangible assets. These

distributed databases enable smart contracts and provide added value for customers. The challenge is to integrate each member's system, usually the ERP system, into the blockchain solution to get the most out of its resources.

Customers and users are usually end users. Platform providers integrate companies to offer additional products or services. Therefore, they rely on industry partners as key partners. Some providers also allow users to offer or sell new devices through a blockchain and allow their customers to become add-ons. Asymmetric encryption only allows the owner to change their data or properties. Distributed blockchain notifies all participants of the change of ownership. Many companies are incorporating these features into blockchain technology to ensure the security of distributed data [11]. The combination of reliable hardware and block-chain technology allows users to secure authentication. Service providers offer these services to legal entities (customers) but meet the needs of individuals (users). The underlying devices are usually user data. Suppliers often work with technology partners to provide security features. These services often include additional technologies such as the cloud. Suppliers sell them without a specific channel. Most companies in our selection do not offer customizable solutions. But they allow companies to use their solutions in a variety of applications. The position of the value chain is the position of the blockchain operator. In these models, many companies use an existing and modified blockchain, usually Bitcoin for a private network, with its own contribution mechanism. Service providers generate revenue from transaction fees and create their own brands [12].

Mediation usually takes place within a group (within a group), which enables a transparent transaction between different partners. Suppliers focus on silver as an underlying asset. They are not very dependent on partners and offer their services based on mobile applications without the possibility of customization, as they aim for convenient and cheap transactions. Place in the value chain is the blockchain user [13]. Vendors typically use an external block-chain infrastructure and the underlying consent mechanism. No additional technology will be introduced. Service providers generate revenue by charging a fee for each transaction transmitted over the network. In addition, they market their brands. To increase the value of their land, they can only transfer their land within their offerings.

Methodology

The study is involved in analysing the critical role of blockchain challenges for internet of things on business models, the researchers intend to apply descriptive research design which enable in aiming to collating data and information to describe the phenomenon or the population. The application of descriptive design support in comparing with different variables and enable in respond to the different variables [14]. The researchers uses both primary and secondary source for performing the study, the primary data source is sourced using questionnaire method, the researchers use closed ended questionnaire and apply 5-point Likert scale for creating the questionnaire. The secondary data source is used to understand the previous study performed in the related topic, also the researchers use various secondary data sources like Google scholar, EBSCO and other related sources [15]. The researchers collect the data from 140 respondents and this information were analysed using SPSS data package.

Research hypothesis

Null 1: There is no major relationship between enhancing return on investments and creating better business model through blockchain technology

Null 2: There is no major relationship between achieve greater operational efficiencies and creating better business model through block-chain technology

Null 3: There is no major relationship between enhance safety and security of data and information in the organisation and creating better business model through blockchain technology

Critical Analysis and Interpretation

This part of the study is to perform critical analysis of the data collected from the respondents, the major analysis covers percentage rate analysis, regression analysis and Chi square

Table 1: Support in Cost optimisation

Support in Cost optimisation	Frequency	in %
Not at all important	8	5.7
Less Important	13	9.3
Neutral	22	15.7
Important	51	36.4
Highly Important	46	32.9
Total	140	100

Based on the above table it is noted that 32.95 of the respondents has stated that the application of blockchain technology support better business model and involve in supporting cost optimisation, also 36.4% of the respondents have stated that the blockchain is important in supporting cost optimisation. 15.7% of the respondents have been neutral and remaining have stated that they are not important.

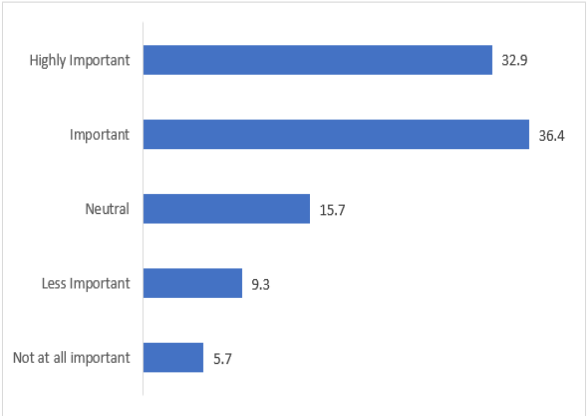

Chart 1: Support in Cost optimisation

Table 2: Enable in reducing redundancy

Enable in reducing redundancy	Frequency	in %
Not at all important	10	7.1
Less Important	12	8.6
Neutral	21	15
Important	47	33.6
Highly Important	50	35.7
Total	140	100

The above table states that 35.7% of the respondents stated that blockchain technology support the business in reducing redundancy, 33.6% of the respondents have mentioned that it is important, nearly 15% have stated that they are neutral, whereas the remaining 15.7% of the respondents are stating that they are less important.

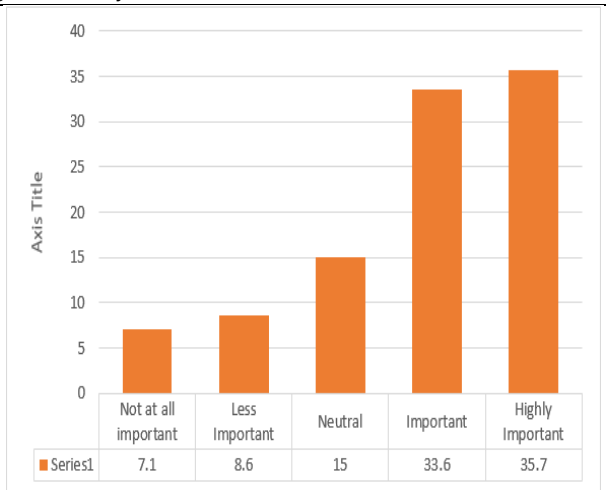

Chart 2: Enable in reducing redundancy

Regression Analysis

The next part of the analysis is testing regression analysis, this part of the analysis enables in estimating the association between dependent variables and independent variable. The major variables are: Enhancing ROI; Greater operational efficiencies and Enhance security

Table 3: Regression Analysis

Model	B	t	P Value
(Constant)	0.26	1.631	0.11
Enhancing ROI	0.343	3.967	0.00
Greater operational efficiencies	0.288	3.422	0.00
Enhance security	0.288	3.96	0.00
F	206.073		
Sig.	.000b		
R	0.905		

Based on the analysis it is noted that the F value is 206.073, whereas the p value is 0.00 hence the variables possess strong influence on the dependent variable.

The regression equation is stated as
Blockchain influenced business model: 0.260 + 0.343 x Enhancing ROI + 0.288 x Greater Operational efficiencies + 0.28 x Enhancing security.

Hypothesis analysis

The last step of the analysis involves in testing the hypothesis for this purpose Chi square test is applied.

Null 1: There is no major relationship between enhancing return on investments and creating

better business model through blockchain technology

Table 4: Chi square analysis between ROI and creating business model

Chi-Square Tests	Data	P Value
Chi-Square	289.594a	0.00
LH Ratio	211.596	0.00
Linear-by-Linear	105.152	0.00

Based on the above analysis it is noted that the p value 0.00 which is less than 0.05 significance value, hence it is stated that there is a major relationship between enhancing return on investments and creating better business model through blockchain technology

Null 2: There is no major relationship between achieve greater operational efficiencies and creating better business model through blockchain technology

Table 5: Chi square analysis between Operational efficiencies and creating business model

Chi-Square Tests	Data	P Value
Chi-Square	293.401a	0.00
LH Ratio	201.169	0.00
Linear-by-Linear	105.429	0.00

Based on the above analysis it is noted that the p value 0.00 which is less than 0.05 significance value, hence it is stated that there is a major relationship between achieve greater operational efficiencies and creating better business model through blockchain technology

Null 3: There is no major relationship between enhance safety and security of data and information in the organisation and creating better business model through blockchain technology

Table 5: Chi square analysis between Enhancing safety & security and creating business model

Chi-Square Tests	Data	P Value
Chi-Square	294.757a	0.00
LH Ratio	188.364	0.00
Linear-by-Linear	100.255	0.00

Based on the above analysis it is noted that the p value 0.00 which is less than 0.05 significance value, hence it is stated that there is a major relationship between enhance safety and security of data and information in the organisation and creating better business model through blockchain technology.

I Simply put, a blockchain is seen as a digital technology that encodes critical data and information that is extremely secure and impossible to hack into the system. It is a digital directory that contains various transactions and can be distributed over the network using blocks. The management of many companies is now focused on implementing new and innovative business models that remove the middleman from the security and performance ecosystem. The existing blockchain solution is mainly used in the financial sector to eliminate the general goal of supporting reconciliation and creating efficient financial transactions. The application of blockchain technology enables an organization to create new ways to improve operations, reduce operating costs, and protect data and information. The impact of these technologies has helped management further increase its investment in these technologies, thereby creating new business models that support long-term growth and development. The use of blockchain technology helps management to create better value for everyone involved, and these solutions enable the development of a decentralized approach that improves the use of contracts and enables automated contracting of system members. Blockchain technology can support the digitization of business activities, in addition to helping reduce costs, focus on traceability and improve security, the blockchain supports the business model. Distributed Autonomous Organizations (DAO) provide better management oversight and control.

Today, many companies realize that the impact of blockchain technology on the business model is becoming increasingly important, with an emphasis in today's business environment on technology development to enable companies to work more efficiently, connect with stakeholders in real time and support for free. Information. flow for management decisions [16]. It has been established that blockchain has all the potential to efficiently transform industries and significantly change different application areas. Current research tends to focus more on critical areas such as finance and accounting, helping to track bank transfers, enabling rapid settlements and improving sustainability. The Internet of

Things (IoT) supports sending data to a private blockchain network to create better data files and shared information. Companies like Block-chain make this possible by helping manag-ement access data more efficiently. IoT-enabled technology helps keep track of inform-ation to avoid disagreements and build trust among all members of the network.

Conclusion

The blockchain platform is more open and is primarily designed to support the world of cloud computing, providing more flexibility. In addition, the blockchain platform provides a more open and better process and creates better business models across the entire ecosystem. The researchers said that blockchain has the greatest potential to transform different indust-ries and it is very important to apply it in different areas. Blockchain research has focused on delivering more promising in a variety of areas and is believed to provide better return on investment, support to improve efficiency and increase the security of critical data in the organization. By integrating blockchain techn-ology, management helps improve transp-arency, reduce redundancy and support mana-gement for better design and development.

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