Applications & Impact of Blockchain Technology in the Business Environment

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Abstract

The study shed the light on the application of block chain technology and its implication in sustainable business. Blockchain technology shares the data that includes transparency with efficiency and reduction of cost. Finance sector use the advanced technology of blockchain to store the data of customers in chronological order and make it easy to access all the important information in just one click. The business model is set up to operate food sector and other economic sectors. Companies that use the application of blockchain technology can be able to expedite the funding process in various ways. This study helps to understand the importance of blockchain technology in developing business operations to increase the revenue, profit and productivity of an organisation.

Keywords*: Block chain, Technology, Business environment, Finance sector, Funding*

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1. Introduction

Blockchain technology is referred to as a system that records information in such a way that it is difficult to change. Blockchain technology shares and records digital history between the parties with safety and reduces the risk of data delicacy. The application of blockchain technology is expanding in different areas with its roots in "crypto currencies". Blockchain technology has the ability to share data, optimize the business procedure and reduce the operational costing with great efficiency. Blockchain technology also facilitates monitoring of the stored data that is responsible for environmental degradation. The purpose to conduct the research on block chain technology is to understand the application and impact in the business environment.

2. Background

Blockchain technology is the new invention that enables sharing of data digitally without being copied to reduce the risk of scam. The block chain technology is described as a source for recording economic transactions that are incorruptible (Bai *et al.* 2020, pp. 321-322). The ledger of block chain technology is coded to track and store the data that includes financial transactions. There are many advantages of block chain technology that have the ability for revolutionizing business models that are traditional. Blockchain technology shares the data that includes transparency with efficiency and reduction of cost. The blockchain technology has an impact on manufacturing companies that entails complex processes for making simple products.

The process of multi-component nature and sequential aspect that aligns with the manufacturing process has an effect on the implementation of blockchain technology. According to the view of Nuryyev *et al.* (2020) that blockchain technology improves the way of supply chain efficiency of manufacturing companies through the identification of products and ensures authenticity (p. 1256). The impact of blockchain technology helps to enhance responsiveness and provides transparency in the organization. Manufacturing companies track the assets with the help of blockchain technology and improve their regulatory compliances. The positive impact of blockchain technology reduces the risk and increases the savings (Sandner *et al.* 2020, p. 128). The evidence of blockchain technology is quite evident in manufacturing technology for its positive effect.

Blockchain technology directly impacts the financial industry that eliminates intermediation and reconciliation rather than enables direct transactions to the trading partners. It also allows for the settlement of transactions and provides a secure model that is resilient and fault-tolerant. Blockchain technology potentially alters the service provision and processes in different industries. Scientific research is developed to understand the implication of blockchain technology that includes development and deriving archetypal patterns.

The effect of blockchain technology is implemented to figure out a rise in asset protection by 10.5 trillion dollars by 2025 through decentralizing the technology with greater transactional security (Statista, 2021). Blockchain analysis stores data with the help of sophisticated maths, and each block carries a cryptographic reference of the previous block (Hussein *et al.* 2018, pp. 442-450). Cryptographic reference is a part of a complicated problem that needs to be solved for bringing subsequent blocks into the chain.

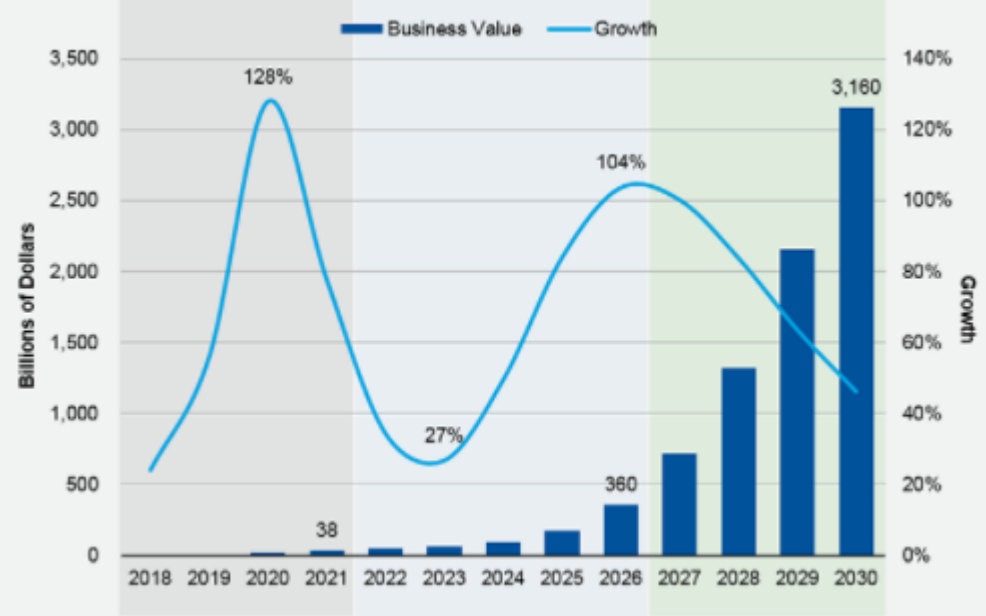

Figure 1: Growth of business due to implementation of blockchain technology
(Source: Influenced by Sandner *et al.* 2020, p. 128)

Business authorities send and receive payments through blockchain technology with the help of a set of rules that is defined as "smart contracts". The process removes the need of intermediaries and thus lowers operating expenses. Business authorities can track their supply chain with the help of blockchain technology, and it is useful, especially in the food industry. Food industry tracks the supply chain with the technology that reduces shipping discrepancies by 98% (Hussein *et al.* 2018, pp. 442-450). Blockchain technology brings new possibilities for business models to find their way in countless facets. The application of blockchain technology includes virtual litigation, increased efficiency in foreign exchange and corporate social governance.

3. Aim and objectives

The aim of the research is to understand the application of blockchain technology in the business model. The purpose of the research is to understand the growth of the business environment due to the impact of blockchain technology.

The objectives of the research:

- To understand the concept of blockchain technology.
- To analyze the impact of blockchain technology on the business model.
- To evaluate the application of blockchain technology in the global market.
- To critically analyze the effect of blockchain technology for sharing the data with security.

The significance of the study helps to understand the concept and importance of blockchain technology in the competitive market. The application of blockchain technology to transfer the data with security and lower the operational cost is analyzed with the help of this study.

4. Evolution of blockchain technology

Blockchain is referred to as the decentralized ledger for recording the transaction within the participant's network. It is the technology that underpins the concept of Bit coin. In a decentralized

ledger, multiple participants can access the shared ledger rather than a single authority. Blockchain technology evolved around ten years ago, and it has developed an interest with its technology advancement for the leading companies (Dabbagh *et al.* 2019, pp. 19212-19221). In the early 1990s blockchain technology has laid its foundation stone however, its popularity has developed for a decade.

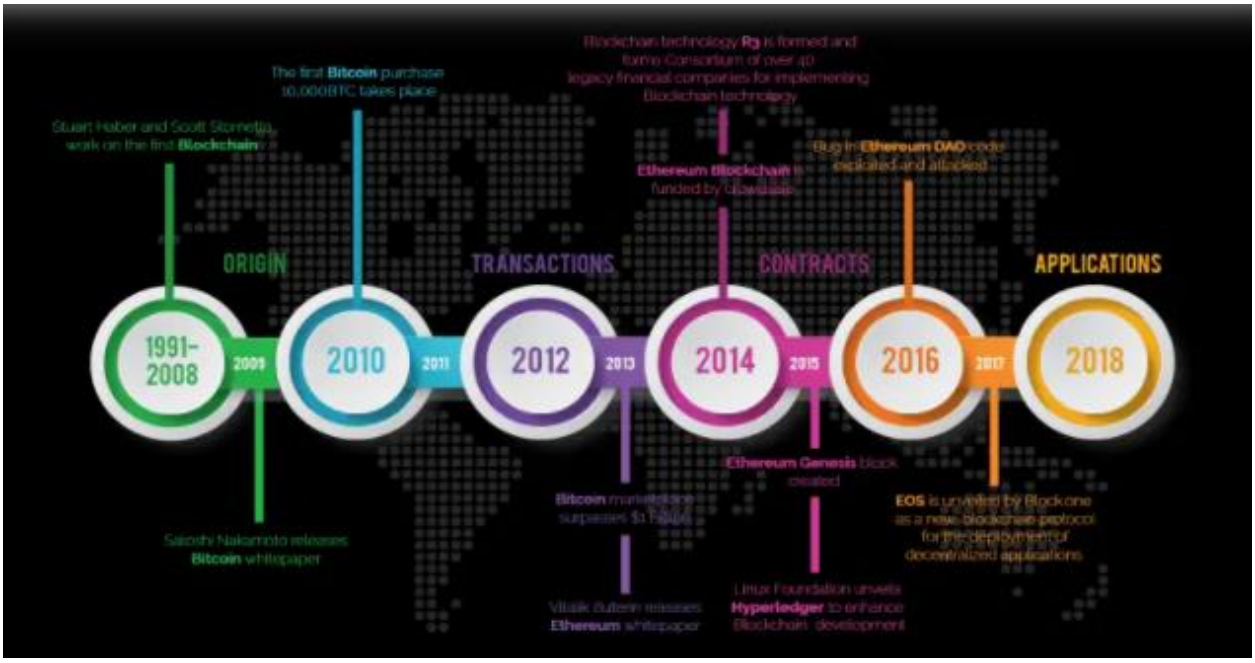

Figure 2: Evolution of Blockchain technology

(Source: Influence by Dabbagh *et al.* 2019, pp. 19212-19221)

The biggest scientific innovation in the 21st century is the invention of block chain technology. The development of Bit-coin technology is the core aspect for the application of block chain technology. As opined by Sabari *et al.* (2019) that blockchain technology was invented in 1991, and since then it has gone through several processes of evolution and now it is equipped to develop digital trust (pp. 2117-2135).

5. Application of block chain technology

Application of block chain technology is evident in various business sectors in the UK that deal with consumer goods in multinational companies. The implementation of blockchain technology in the multinational company sets a new measure for improving the health and fight with the climatic change. The companies in the UK that produce consumer goods integrate blockchain technology to collect the demographic data and store it in a safer place. According to Wu & Tran (2018), the food industry implements the blockchain technology to manage the supply of tea (p. 3067). Blockchain technology is a powerful tool to achieve the primary objectives that helps to establish transparency in the supply chain.

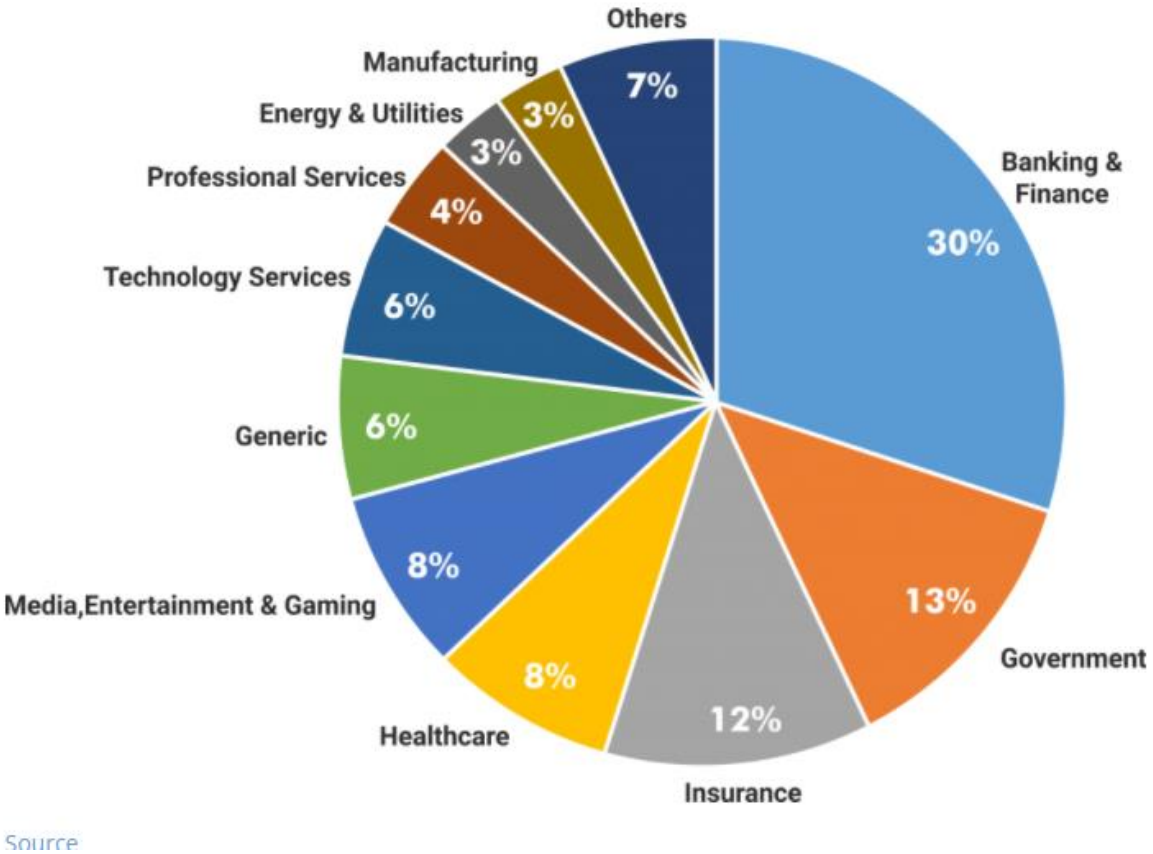

Figure 3: Implication of blockchain technology in different sectors

(Source: Influenced by Fauziah *et al.* 2020, pp. 160-166)

Companies that deal with software technology use the blockchain technology as the primary solution to record the transaction in each discrete set of blocks. The data is encrypted in each block and the information is submitted for verifying different nodes (Fedorova & Skobleva, 2020, pp. 552-571). Once the data is validated, it gets duplicated in the network servers that make it difficult for anyone to alter the data. Food companies track the supply chain to ensure that customers get the right product without any discrepancy. Finance sector use the advanced technology of blockchain to store the data of customers in chronological order and make it easy to access all the important information in just one click (Fauziah *et al.* 2020, pp. 160-166).

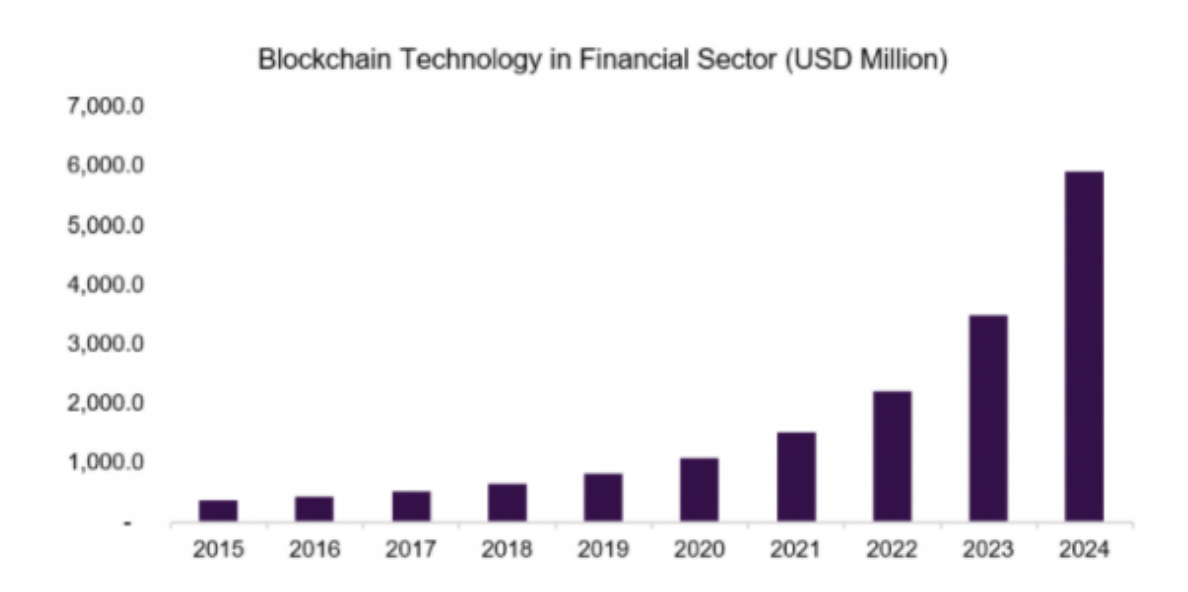

Figure 4: Growth of financial sector due to blockchain technology

(Source: Influenced by Fedorova & Skobleva, 2020, pp. 552-571)

In the financial sector, the implementation of blockchain technology improves the ability by streamlining and automating the manual operation of the business. Underpinning technology of blockchain includes Bit Coin that improves the financial services in the future. Companies that use the application of blockchain technology can be able to expedite the funding process in various ways. The funding process includes "equity token offerings, security and exchange offerings" (Fedorova & Skobleva, 2020, pp. 552-571). The potential use of blockchain technology in the banking sector enables to speed the process of payments and improve the satisfaction of customers.

The application of blockchain technology is vital in the financial sector that ensures settlement in transactions and it is better than the traditional method. For transporting money globally, many financial sectors have logistic hurdles, and they pass through complex chains for reaching out the destination. Thus blockchain technology collects all the transactional records and reconciles with the global financial system. In terms of trading blockchain technology is the significant factor that is related to all financial activities related to global trading in trade finance (Fauziah *et al.* 2020, pp. 160-166).

The blockchain technology is a powerful tool for tracking the supply chain in the manufacturing industry. According to the views of Wu & Tran, (2018) that the tracking record from the raw materials to finished products is implemented by blockchain that increases the transparency at every stage of the supply chain (p. 3067). The asset, quality assurance and regulatory compliance are the factors that blockchain technology addresses.

6. Theoretical background

Complementary theories in logistic management

Blockchain development resembles the adoption of advanced technology that has positive implications in the business operation. Complementary theories explain the technology infrastructure with the usage

of block chain protocol that validates the storage information and establishes a consensus rule. The complementary theories use the applicability of logistic management for block chain functionality and provide indication for potential future on the supply chain (Fedorova & Skobleva, 2020, pp. 552-571).

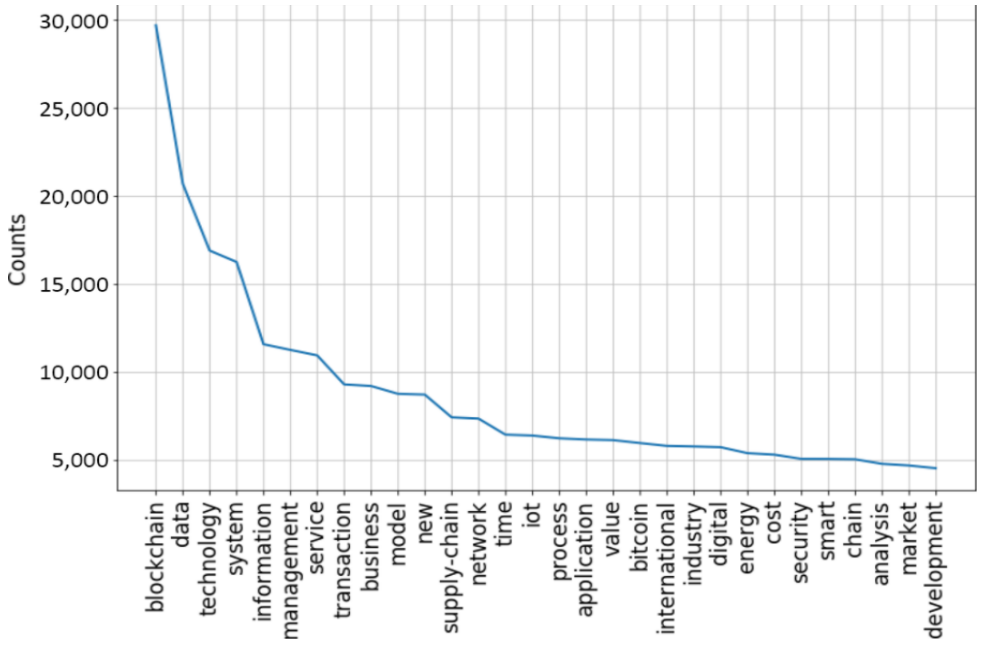

Figure 5: Supply chain management due to blockchain technology

(Source: Influenced by Fedorova & Skobleva, 2020, pp. 552-571)

The theoretical framework is used to monitor the expenses of bonding expenditures by the principal-agent that supervises and controls the information. The theoretical approach aims to focus on the diverse issues and ensures improvement in performance with respect to the competitive market. The theory postulates for selecting efficient organizational structures that impact the governance mechanism for transaction and production cost. As opined by Saberi et al (2019) that the complementary theory provides a base for transaction cost analysis to measure the supply chain management and develop an investigation on the outsourcing (pp. 2117-2135). The theory emerged as a countermovement to emphasize the strategy in a particular sector that is related to performance effectiveness. The theory is related to the block chain technology for effective management of records that are stored in a synchronized manner to each block.

7. Methodology

Method for gathering and collecting the information needs to be specific for analyzing the data with accuracy. In the particular study, a ***secondary qualitative research method*** is chosen for gathering relevant information regarding the application and impact of block chain technology (Rosario *et al.* 2020, p. 14). In the secondary research method, authentic information is gathered from different journals, books and articles with relevance to the topic. The research article that is used for this study provides true information about the application of block chain technology in business models. Secondary methods of study draw a conclusion of the impact and the analysis of numeric and non-numeric data. The data is gathered through secondary sources from the well-known portals that are "ProQuest" and "Google Scholar".

According to Flick (2020), all the information that is collected is efficient for providing justification of the relevant study (pp. 713-720). The data that is gathered is aligned with inclusion and exclusion criteria for maintaining the authenticity of information.

Inclusion criteria	Exclusion criteria
• Information is collected from the journals that are published after 2018. • The articles are all written in the English language. • Journal and articles are closely related with the topic and the key terms used in the study.	• Journals and articles that are published before 2018 are excluded from the study. • The articles that are not written in the English language • Journals that provide incomplete information or source of data are excluded.

Table 1: Inclusion and exclusion criteria

(Source: Developed by researcher)

The information that is gathered is based on the current situation of the application of blockchain technology. The methodology for this study is a systematic review process that analyses the secondary information for evaluating the impact of block chain technology in various sectors (Rosario *et al.* 2020, p. 14). The secondary research method is narrowed down by ***PRISMA*** that utilizes only 10 journals that are relevant with the key terms.

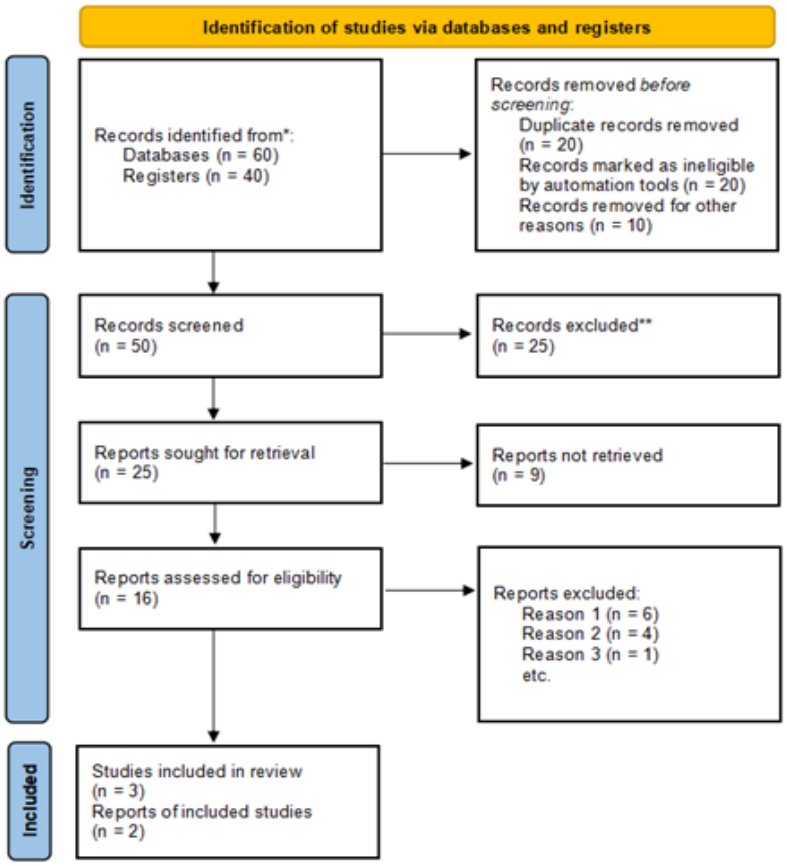

Figure 6: PRISMA Diagram

(Source: Developed by researcher**)**

The information gathered from the 10 journals in this systematic review incorporates in-depth knowledge of the topic. For this particular research study, ***thematic analysis*** is conducted to bring forth a high degree of knowledge. According to Flick (2020), the themes are based on the key terms that are relevant to the analysis of the study (pp. 713-720). The outcomes of the research are analyzed with the themes that are developed based on the data extracted from the research. In terms of achieving the aims and objectives, it is important to guide the study based on the inclusion and exclusion criteria.

8. Results

Citation	Research Method	Quality Review
Mercuri *et al.* (2021)	Qualitative	Relevant (Objective justified)
Wang *et al.* (2022)	Qualitative	Relevant (Followed proper ethics)
Caldarelli *et al.* (2021)	Qualitative	Relevant (data has met the research value)
Chen *et al.* (2021)	Qualitative	Relevant (data is significant and authentic)
Mačiulienė & Skaržauskienė, (2021)	Qualitative	Relevant (usage of valid data)

Table 2: Quality review table
(Source: Developed by researcher)

Citation	Objectives	Theme	Code
Mercuri *et al.* (2021)	To facilitates improved sustainable business with the help of blockchain technology	"Blockchain technology has implemented for Sustainability in business "	Blockchain, transaction cost, sustainability and artificial intelligence.
Wang *et al.* (2022)			
Caldarelli *et al.* (2021)	To adopt blockchain technology for overcoming barriers and introducing supply chain management	"Adoption of blockchain technology in supply chain management"	Blockchain, fashion, sustainability, supply chain
Chen *et al.* (2021)			
Mačiulienė & Skaržauskienė, (2021)	To build an integrative framework of block chain service systems.	"Blockchain technology to build conceptualize value of co-creation"	Blockchain, decentralized organization, service system.

Table 3: Themes and Code table
(Source: Developed by researcher)

9. Analysis

Theme 1: Blockchain technology has implemented for Sustainability in business

The implementation of block chain technology is advantageous for sustainability in business because the lack of transparency results in posing challenges in the global supply chain. Blockchain technology offers unprecedented transparency level that shares decentralized data that is encrypted and stored in every block. According to the findings of Mercuri *et al.* (2021) that the encrypted information that is stored in every node facilitates sustainability in the business model (p. 5619). The blockchain technology is important with respect to the business perspectives. The business model is set up to operate food sector and other economic sectors. The findings state that block chain technology increases the sustainability through realization of security, particularly in the food sector.

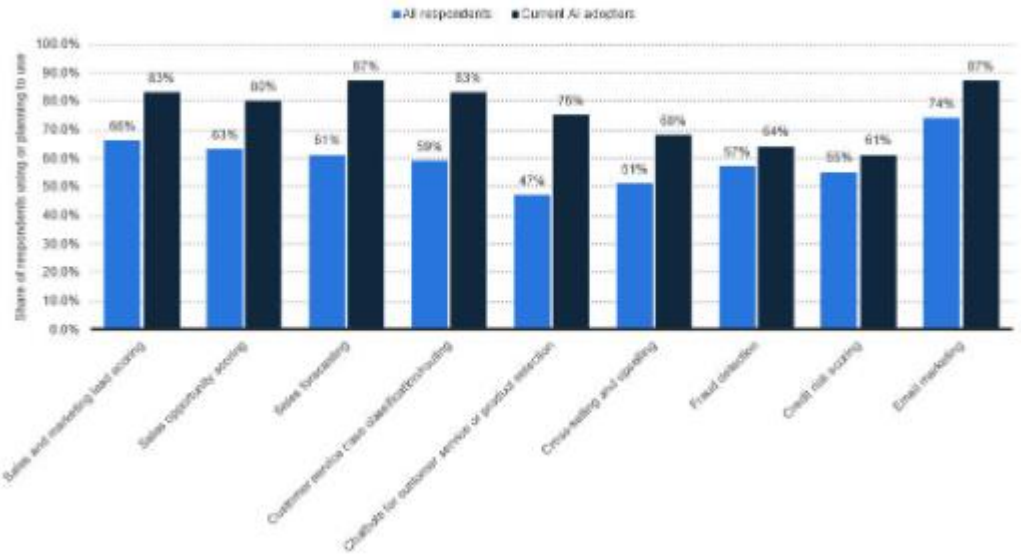

Figure 7: Effect of blockchain technology in different sector
(Source: Influenced by Mercuri *et al.* 2021, p. 5619)

The blockchain technology contributes to the reduction of cost and time that is beneficial for building up relations with companies. As stated by Wang *et al.* (2022) that blockchain technology in the sustainability is a powerful tool that helps to achieve the organizational goal and provide interconnection in the complex system (p. 102759).

Theme 2: Adoption of blockchain technology in supply chain management

The adoption of blockchain technology is implemented to produce better results in product quality and product development with time. The purpose for blockchain technology is to increase the customization of offerings to customers. As opined by Caldarelli *et al.* (2021) that the adoption of blockchain technology is a challenging issue that predominantly provides the overview of supply chain modelling using the blockchain (p. 41). The incorporation of blockchain in supply chain series helps to govern the rule and regulation for sharing information and coordinating the value supply chain.

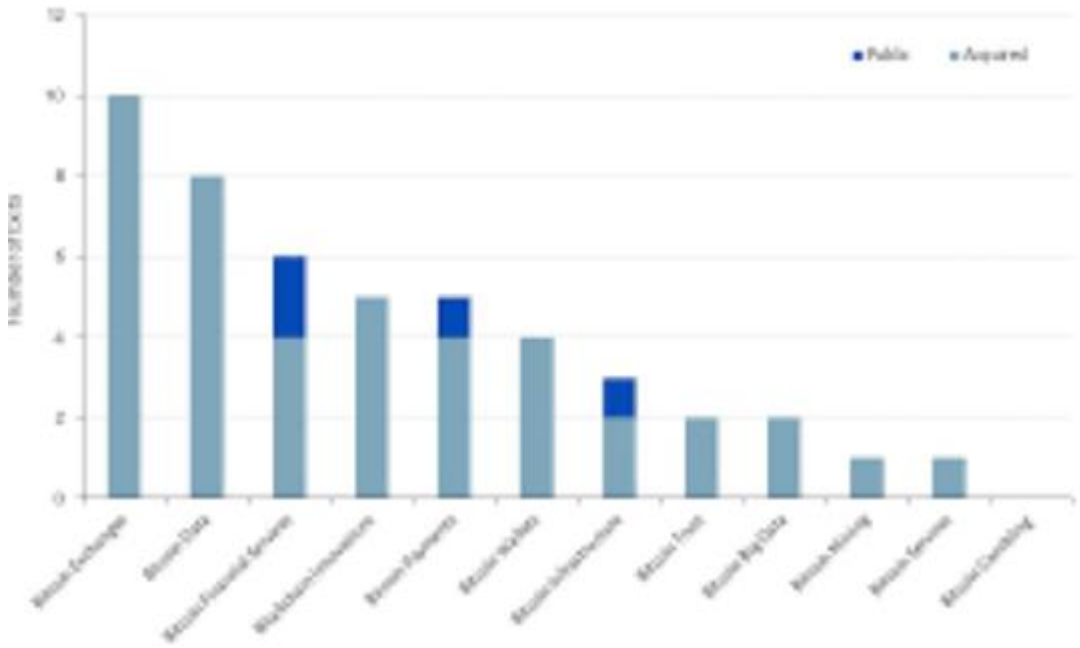

Figure 8: Growth of adoption of blockchain technology in supply chain management
(Source: Influenced by Caldarelli *et al.* 2021, p. 41)

The technology is implemented for earning profit through supply of products and training the system with societal changes and strengthening the behaviour of participants. As stated by Chen *et al.* (2021) that the interrelationship of blockchain technology and supply chain management is a challenging phase for understanding the solutions of blockchain technology (pp. 909-935). The implication of artificial intelligence is also a factor for the development of relation with supply chain management.

Theme 3: Blockchain technology to build conceptualize value of co-creation

The hyper-connectedness of the multi-stakeholder is implemented as an initiative that is designed to facilitate the interaction for value co-creation. The value co-creation with blockchain technology enables transaction of information and contributes for creative suggestion. The process for opening a value chain is a complex procedure for which co-creation challenges the engagement of stakeholders. The blockchain technology is adopted for decentralizing the business model to share the economy that provides potential alteration to traditional organization. Blockchain technology is the digital ledger as the main metric for co-creation value. The decentralization of the business model focuses on Web 3.0 strongly for community governance and self-sovereignty of data (Mačiulienė & Skaržauskienė, 2021, pp. 330-341). The new institutional advanced technology of blockchain competes with economic institutions through eliminating the traditional intermediaries.

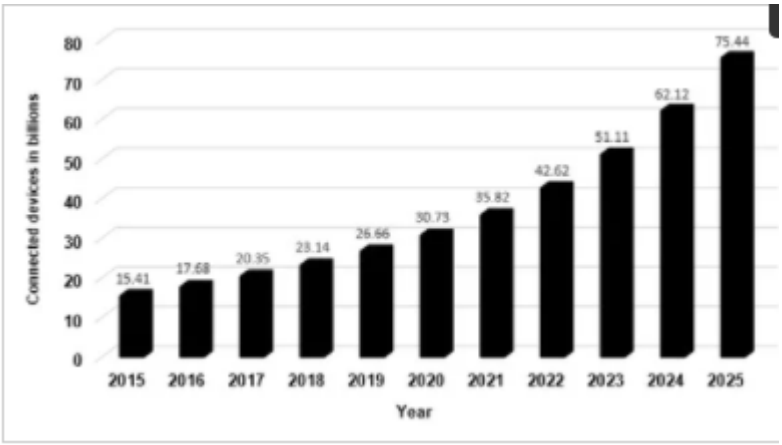

Figure 9: Growth due to blockchain technology in co-creation value
(Source: Influenced by Mačiulienė & Skaržauskienė, 2021, pp. 330-341)

Blockchain technology is predominantly focused on the co-creation application that contributes to recognizing the capitalization and authenticity of transactions. According to the view of Mačiulienė & Skaržauskienė, (2021) that the emerging technology promised for potential impact that is needed for more research (pp. 330-341). Blockchain services pay attention to the business model and value creation. The integration of organizational management and community engagement results in the gain of impetus because of block chain technology. Blockchain services are the interdisciplinary framework for the value creation that is helped to analyze the service ecosystem.

10. Discussion

The block chain technology underpins the concept of Bit coin that helps to emerge the sustainability in business with the help of artificial intelligence. The contribution of blockchain technology leads to provide reconfiguration of the business model through the adoption of different strategies and elements. The blockchain technology represents a positive instrument to achieve the sustainable goal that helps to increase the company's performance. Companies that use the application of blockchain technology can be able to expedite the funding process in various ways. The implementation of blockchain technology in multinational company sets a new measure for improving the health and fight with the climatic change.

11. Conclusion

Hence, it can be concluded that blockchain technology is considered to be a record of information so that the information cannot be changed and hacked by a third party. It is much important within an organization so that it can digitally be efficient so as to protect the data for enhancing productivity and efficiency. It is much important for organizations so that they can save their data for future use and increase revenue and profit. Blockchain technology is used by organizations so that the manufacturing process can be effective with the evolution of this technology throughout the years. Thus, it is much important for organizations so that data and information can be managed properly to enhance the productivity and efficiency of different companies in the UK. This technology is applied by organizations in order to make production more effective to increase efficiency and productivity. The data is stored effectively by following proper technology and mechanism for optimizing the performance of different organizations.

12. Future Scope

This research process is much helpful for the students, academics, researchers and journalists to develop their knowledge and skills regarding the application of block chain technology. Future research will help to identify the ways of application of block chain technology to develop business operations. The research can also be progressed to identify the risks in the business so that the study can be more developed.

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