

Innovation and Key Benefits of Business Models in Blockchain Companies

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Abstract

Existing business models are changed and disrupted by blockchain technology, which warrants more research. This study tries to describe the phenomena of blockchain technology in relation to business model innovation in the enterprise ecosystem on the basis of that. Blockchain technology has been shown to increase organizational performance empirically. The value system concept is used in this study to explain this phenomena. This study employs a multiple-case study to respond to research questions using abductive reasoning. Overall, the outcomes According to this study, blockchain technology benefits an organization in four different ways: (i) value capture through higher profitability; (ii) value creation through private partnerships; (iii) value delivery through smart contracts; and (iv) value proposition that drives value by raising the organization's business value through operational improvements. This report also suggests a blockchain ecosystem with various private and consortium organizations. Private ecosystem focused on internal organizational performance enhancement within one corporate enterprise. The consortium ecosystem, on the other hand, is focused on fostering corporate cooperation.

Keywords: Blockchain, Business Model Innovation, Enterprise, Private, Consortium

1. Introduction

The extensive yet fascinating subject of business model innovation emphasizes working together to get over organizational constraints [1]. Such cooperation encourages innovations to more effectively and efficiently manage an organization's sustainability. It is arguable that these breakthroughs benefit organizations more than other innovation categories, such as product, process, and technology ones [2]. Such advancements are made possible by the internet, which removes restrictions on data/information access. Business model innovation is made possible for enterprises thanks to the development of blockchain technology. Through cryptocurrencies, blockchain technology is upending the global financial sector. Due to its decentralized protocols, transaction activities can be supported directly without the need for intermediaries like financial institutions. Additionally, it develops into a system that can be used in various business endeavors that were previously unattainable due to technology [3].

This specific protocol can address important commercial difficulties, such trust, when executing transactions [4]. These values are translated into a system to address business

difficulties via this system. Blockchain technology enables a multi-entity method for exchanging data and information. highlight the part that blockchain plays in corporate cooperation [5]. Access to data and information is a crucial requirement for developing company collaboration. If all parties involved preserve transparency and have equal access to data and information, this situation is feasible. Blockchain technology functions as a smart contract with an algorithm [6]. A system code that supports commercial transactions is the algorithm. The blockchain ecosystem is defined by the evolution of blockchain technology into enterprise blockchain. Blockchain technology is used in the business environment to assist organizations in achieving their goals, such as enhancing organizational performance [7].

Two interaction patterns (inter- and intra-organizational) are supported by the enterprise ecosystem to accomplish various goals. Blockchain technology can be utilized in particular businesses or ecosystems as a platform for collaboration [8]. Potentially, this technology raises organizational performance. The development of new business models and blockchain technology has drawn academic interest. Through the use of the business model canvas, explain this idea. Using a different research approach, discuss a similar arrangement from the integrated business model [9]. Both results show that blockchain technology has an impact on the current business structures. Despite the fact that blockchain has many advantages, particularly for creative business models, few companies are aware of it or have used it. Understanding the function of blockchain in businesses, which is yet mostly unexplored in Indonesia, is crucial. As a result, this study makes a contribution by bridging this knowledge gap [10].

Additionally, the coexistence of business innovations with the corporate blockchain ecosystem is formulated and explained in this paper [11]. To respond to the research questions, we employ several case studies and abductive reasoning. The structure of this essay is as follows. The literature review is presented in the section that follows the introduction, then the research methodologies are covered. The results are examined and discussed in the section that follows. The concluding portion analyzes the drawbacks and makes suggestions [12].

2. Literature Review

In this study, the ideas of business model innovation, blockchain technology, and enterprise blockchain ecosystem are used to support the research. The concepts are covered in the following sections [13].

Blockchain Technology

Blockchain technology's history parallels that of Bitcoin, a cryptocurrency that upended the global financial sector. Initially, blockchain and bitcoin were thought to be two separate technologies, with bitcoin being a byproduct of blockchain technology [14]. Blockchain is a decentralized technology developed in response to centralized systems that are harmful to the global economy [15]. The blockchain's creator also observed that decentralized technology is safer to use and might speed up and accurately facilitate financial operations [16]. A decentralized mechanism for safe data/information exchange is provided by blockchain technology. The protocol for this technology calls for a witness and verification. When there are more parties or verifiers involved, the transaction is safer [17]. The peer-to-peer relationships that blockchains enable between entities without the use of intermediaries mean that every transaction is carried out directly. The creation of user code within the system is the first step in making the blockchain work [18]. Blockchain features members and nodes that promote data and information sharing because of its decentralized nature. Other nodes are required to confirm and authorize all transactions between nodes. The data is then encrypted and sealed before entering the system. The system has changed during its growth to accommodate societal needs [19].

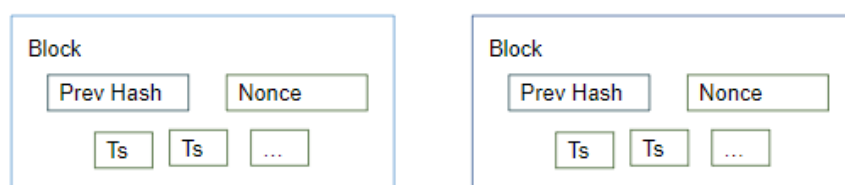


Figure.1
Blockchain Workflow Process

Like Bitcoin, the foundation of a blockchain's development is a system for money transfers [20]. Faster, more transparent, and more secure transactions are made possible by this technology. The transfer of data and information is thus covered by the system. Simply put, the financial system's reach is surpassed by the blockchain in scope [21]. Three versions of blockchain technology have emerged as a result of the technology's development to date: blockchain 1.0, which stresses the speed of data and information transactions; blockchain 2.0, or smart contracts; and blockchain 3.0, which employs smart contracts on decentralized applications (Dapps). Due to its considerable versatility, the blockchain can offer a variety of advantages and open up new prospects [22].

Business Model Innovation

Business models describe a framework for constructing an organization's commercial operations. They make it possible to show organizational representations visually. Business models have been defined differently by many academics. Describe how business models show how firms market their goods and services. thinks about how business models transform concepts into economic viewpoints. "A business model is a model that represents the logic of how an organization generates, delivers, controls value and how money is earned in a firm," according to the definition given for it [23]. Organizations can manage dynamic business problems with the aid of business models. Business model innovation is the term used to describe organizational initiatives to modify business models as a result of shifting commercial conditions. As an evolutionary process, "a fine-tuning process including voluntary and emergent changes in and amongst permanently linked fundamental components," describe business model innovation [24].

The idea also alludes to learning procedures. Business model innovation enables firms to build new business models using the knowledge and expertise gained from existing ones. Additionally, it upends conventional business practices to provide novel business models that are arguably more productive than other forms of innovation, such as technology and product innovation. Business models are a framework that connects essential components, therefore the success of business model innovation depends on how firms employ logic to arrange the components. Use the activity system idea to describe how different business models or model innovations interact. Introduce the concept of the value system, which consists of the four aspects of value capture, creation, delivery, and proposition [25].

Fundamentally, value systems are a collection of actions. Value capture, often known as "monetization of values," describes how organizations capture values from an economic standpoint. Value creation, on the other hand, refers to chances for consumers to learn about organizational values. In order to express corporate value propositions, prioritize value delivery through effective connections and communication with customers. Last but not least, a value proposition is built into the goods and services provided to communities to demonstrate value creation and value capture.

Enterprise Blockchain Ecosystem

The blockchain platform's application allows for the use of restricted users to facilitate business operations. The enterprise ecosystem is concentrated on offering venues for groups working together toward comparable ends. Through cooperation among corporate participants, the blockchain platform's deployment intends to leverage business values. As a result, entity constraints are required to change the decentralized protocol. Intra-organizational and inter-organizational interactions make up the two categories of enterprise ecosystems. The blockchain ecosystem is impacted by both intra- and inter-organizational ecosystems. The term "intra-organization ecosystem" refers to the sharing of data and information within an organization via a decentralized protocol. In contrast, the consortium ecosystem's underpinning system is the inter-organizational pattern. Other organizations participate in this ecosystem's economic operations.

However, all registered nodes have equal access to both private and consortium ecosystems. With blockchain technology, every node or member of the ecosystem gains the same advantages. A smart contract that is pre-agreed upon by the members is used to implement the blockchain on the private blockchain. Data/information transaction problems or manipulation are probably eliminated by the automation process. Additionally, the data/information flow is transparent and shown visually in a manner identical to that of the other nodes. In the private ecosystem, blockchain technology may be more advantageous than traditional methods and perhaps take their place. Some of these benefits give private ecosystems additional added value.

Blockchain Economics

The economic infrastructure is now significantly impacted by blockchain technology. Due to the enormous value increase of blockchain-based economic products like Bitcoin, this technology has altered the way people conduct economic transactions or activities. The most valuable currency in existence today is probably Bitcoin, a cryptocurrency that depends on processing power. elucidate how market mechanisms are used in a decentralized system to manage Bitcoin (supply and demand). Bitcoin is gradually evolving into a widely accepted type of currency around the world. Because it restricts the number of entities that can interfere with its use, the money reflects actual economic conditions. Blockchain technology is also used outside of Bitcoin because it promotes economic redistribution by lowering transaction costs. Due to the elimination of intermediaries, the peer-to-peer nature of the blockchain protocol implies cheaper transaction costs. The expenses incurred by intermediaries for seeking, monitoring, and adapting can be reduced by either individuals or groups. In other words, a blockchain offers direct access to sources of data and information. suggest that blockchain's three key features correctness, decentralization, and cost efficiency improve the efficiency of transaction costs. Through distributed data and information and a decentralized authority-consensus decision-making paradigm, a blockchain maintains data and information integrity. It would take an enormous amount of energy or a 51 percent attack to alter the recorded data or information.

3. Research Framework

This study analyzes the important linkages between business model innovation and the corporate blockchain ecosystem based on the literature. The enterprise blockchain ecosystem, which consists of private and consortium ecosystems, and the value system idea are both integrated into the research framework for business model innovation. The research framework used as a guide for creating the study technique is shown in **Figure 2**.

Enterprise Ecosystem	Value Creation	Value Creation	Value Delivery	Value Proposition
Private				
Consortium				

Figure 2.
Research Framework

4. Research Methods

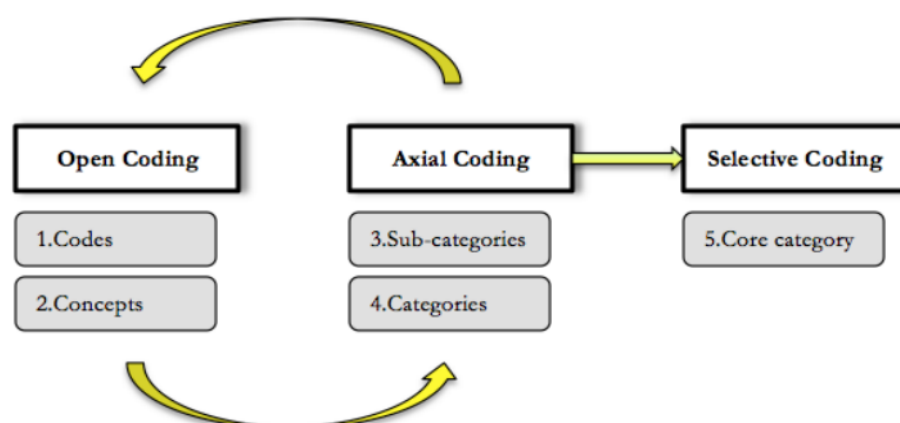
Abductive reasoning is used in this work to explain the phenomenon. Abductive reasoning employs the literature as a reference for researchers to explain these facts while still attempting to demonstrate the significance of comprehending the truth through facts that are observed. Therefore, it might be argued that the case study is the most pertinent research methodology for this approach. In this regard, the multiple case study approach is advised to analyze the research subject more thoroughly because it avoids research while reinforcing the findings. Four cases specifically are thought to be enough to generalize the results. This study employs at least four current members of the enterprise blockchain ecosystem in accordance with these suggestions. Four other organizations that represent the enterprise blockchain ecosystem are also used in this study.

Table 1.
Informants' Profiles and Interview Duration

Interview	Position	Organization	Duration
Putri	Student	Enterprise 1	1:15
Fikri	Student	Enterprise 2	1:30
Khaizure	Student	Enterprise 3	1:10
Abel	Student	Enterprise 4	1:45

In an enterprise blockchain ecosystem, we describe business model innovation using the value system. The study also makes use of semi-structured interviews and is fully aware that four cases should be investigated. This type of research is resource-intensive and necessitates the necessary aptitude. Because of this, this study makes use of both primary and secondary sources of information to better comprehend its subject. The case study research's primary obstacles are data validity and reliability. Therefore, a research protocol is applied to every case in this study. Due to the fact that this study comprises

numerous instances, the research protocol also serves as a reference during the data collection process.



Source: Kim Boes

Figure 3.
Coding Process

The notions are more thoroughly examined in this study using a grounded theory approach. Process coding is used in the grounded theory data analysis to combine data and information gathered from informants. The investigation starts with open coding and conceptual translation of the informant's data and knowledge. Additionally, axial coding is used throughout the investigation, and selective coding is used to conclude it. Iteratively, this coding procedure goes back and forth. The coding procedure is demonstrated in Figure 3. We place a great deal of trust in the coding process' correctness. Experts and informants validate the coding results to support the synthesis of the coding process.

5. Analysis And Discussion

The coding procedure is used in this study as a tool to assess the results of in-depth interviews. Then, in order to illustrate the business model innovation model, the interview results are line by line and through open code assessed based on a value system.

5.1 Open Coding

A. Value Capture

Blockchain technology is being used in the business environment with the goal of enhancing organizational performance as measured by financial performance (Table 2). Utilizing this technology can enhance financial performance by boosting productivity and efficiency. The technology lowers transaction costs, increasing efficiency. The employment of this technology may result in a reduction of operational expenses like transaction costs (including fees paid for using intermediaries) or insurance costs, assuming that income remains constant. Blockchain lowers transaction costs by enabling peer-to-peer communication between entities/organizations through a decentralized protocol. Profits eventually rise as efficiency rises.

By boosting productivity, businesses also enhance their profitability. Through precise

data and knowledge, firms may boost efficiency via a decentralized blockchain system. In this way, erroneous data or information leads to disputes between units and reduces production. Because users submit data directly and need third parties to verify it, decentralized protocols are more accurate than centralized ones because they foster higher trust between parties.

Table 2.
Open Coding of Value Capture

Open Coding	Rationale
Reduce costs	Loss of intermediary parties' financial effects
Higher margin	financial performance brought on by higher sales or cost-cutting

B. Value Delivery

Value delivery is a method for getting value propositions to users, as indicated in Table 3. Using legal processes, a blockchain can finalize corporate transactions. Law is composed of algorithmic programs that regulate the legal processes. Enterprise blockchains are immutable because they are closed systems. On top of it, they use code or algorithms to define business operations. The technique is bolstered further by the verification process, which only requires a few ecosystem nodes. Two-way communication turns as a method of contact between units or companies in the business blockchain. Every member must take part in the operations of the system. Nodes must validate the data/information transaction before executing it together with the transaction. The purpose of this verification is to lower transactional exhaustion. If appropriate, the transaction can be carried out. On the other side, a transaction that has been declined because of a data or information mismatch cannot be finished. Only transactions that have the support of other members are allowed. The disintermediation process in the enterprise ecosystem logically leads to the agreement of additional nodes. The decentralized protocol eliminates the need for intermediaries to verify the transaction. Instead, the blockchain protocol uses ecosystem-integrated nodes to validate transactions. Because it provides for reciprocal supervision and incorporates the interests of the parties, member involvement is thought to be more effective.

Table 3.
Open Coding of Value Delivery

Open Coding	Rationale
Legal procedure	The law inherent in the platform
Algorithm-based	a methodical approach that supports the blockchain system
Two-way	relationships receive and respond to data. This mechanism forces the node to monitor and verify transactions simultaneously

Disintermediation	Relationships accept information and react to it. This approach requires the node to simultaneously monitor and confirm transactions.
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C. Value Creation

Organizations must use blockchain technology to carry out their essential tasks and launch corporate business values (Table 4). On the private blockchain platform, the range of interactions is constrained and only works within or between enterprises. The coverage in the consortium ecosystem includes several organizations in specific fields. Therefore, business prospects can be created through inter-organizational patterns or collaborative models. The use of blockchain technology in this particular ecosystem makes allowances for the units' limited ability to interact with one another. Imposing restrictions on units that have agreed to participate in the ecosystem is necessary due to the reality of the interaction patterns in the corporate ecosystem. Simply simply, it restricts access to the platform for non-cooperating organizations. Organizations registered in the ecosystem must come to a deal before the technology may be used. The ecosystem's consensus is the main tenet on which an enterprise's blockchain platform is based. As the agreement is ingrained in the technology, every organization that uses the platform must comprehend how it works. The agreement intends to prevent disagreements from occurring when corporate operations use the blockchain network.

Table 4.
Open Coding of Value Creation

Open Coding	Rationale
Intra-organization	The organization's relationship structure amongst its various entities
Inter-organization	The corporate entity relationships in different business ecosystems
Customizable	adjusting a number of blockchain characteristics in accordance with the requirements and preferences of its market segments
Service level agreement	The type of agreement that is accepted by nodes and included in the system's agreement

D. Value Proposition

The blockchain platform is used in the business environment to start value delivery or transfer (Table 5). Protocols that are decentralized specify how data and information are disseminated. To put it another way, transactions simply need to have the data/information distributed in each node approved. The data/information transmission procedure is not required if allowed. The process will start right away after the approval order is issued. A

decentralized system also improves cost effectiveness by doing away with transaction expenses in these processes. The intermediary-mediated transaction process results in transaction expenses. Every time a service transaction is produced by a process, transaction charges are often added. The absence of intermediaries is made possible by the existence of the blockchain. Peer-to-peer data/information transactions enable the abolition of transaction fees. The execution of data/information sharing and consensus among the nodes in this system, however, depends on the participation of other nodes.

Table 5.
Open Coding of Value Proposition

Open Coding	Rationale
Delivery	Transact more swiftly by transferring value over scattered data.
Cost efficiency	Distributed data increases cost effectiveness by getting rid of wasteful expenses.
Consensus	The decentralized system is supported by the node-level agreement mechanisms.
Transparency	Each node has equal access to the data thanks to distributed data.

A key concept in blockchain technology is the consensus system for transactions. All transactions between nodes or components of the enterprise ecosystem must be secured by this character. Transparency of data and information is necessary for consensus. On the blockchain, each node or component has equal access. Since this system follows the witnessing principle in every transaction, data/information can be kept effectively.

5.2 Discussion

The comparatively understudied potential application of a blockchain in businesses is demonstrated empirically in this paper. All facets of business model innovation can benefit from the use of blockchain. Performance improvement is the main advantage offered by the enterprise blockchain ecosystem. By reducing transaction costs and raising organizational productivity, the improvement seeks to increase profitability. The focus of improving financial performance is on inefficiencies caused by transaction costs. For businesses to operate at this level of performance, they must structure their operations through private partnerships. A private partnership is a modest endeavor in which businesses consent to take part in the ecosystem. In order to create commercial values within the enterprise ecosystem, the company uses a blockchain, smart-contract solution. This ecosystem makes use of blockchain technology to enhance organizational performance. Halal food serves as a great example of how supply chains built on the blockchain promote business model innovation inside the corporate blockchain ecosystem. A blockchain encourages innovation in all areas of the company model. Additionally, it aims to streamline the commercial procedure for producing values. Members of an ecosystem enable open process monitoring. Costs will be more effective from the perspective of value collection because the ecosystem will be fully in charge of monitoring the system using a secret identity, doing away with the necessity for a centralized system. The usage of blockchain technology also attempts to improve consumer perceptions of a product's halal

status. The value proposal in a supply chain built on a blockchain offers distinctive value propositions (traceability and trackability), which could grow the industry.

Research Proposition

Although the private and consortium ecosystems share some traits, they both differ significantly. The first is that intra-organizational contacts, or exchanges between parts of a single firm, are more constrained in the private ecosystem. The consortium ecosystem, on the other hand, includes a wider range of interactions including diverse entities looking to cooperate or inter-organize. The second is the purpose of the blockchain platform. The performance that can be optimized in private ecosystems is restricted to advancements in a single firm. Conversely, implementing this ecosystem aims to encourage shared objectives or collaboration in the private ecosystem.

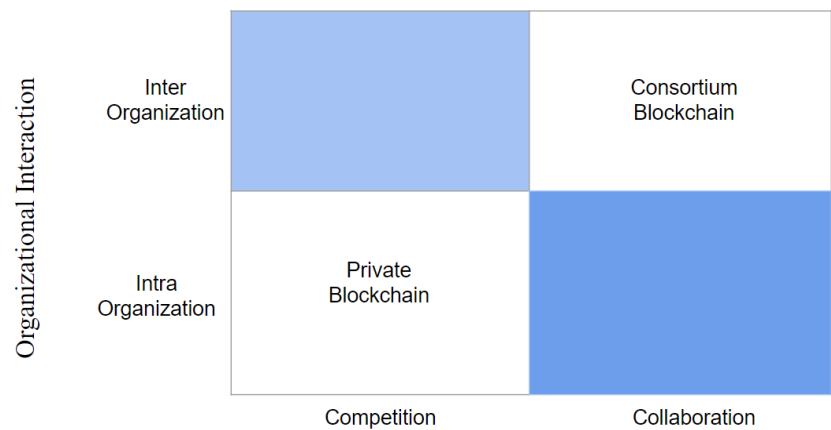


Figure 4.
Blockchain Ecosystem Matrix

Based on these observations, we present two hypotheses, as shown in Figure 4. The findings point to interaction structure and business model orientation as two core concepts in the enterprise ecosystem. The synthesis findings uncover various lessons from the consortium and private ecosystems. The sole organizational objective of the private ecosystem is to maximize business performance or competitiveness. On the other hand, asset utilization is more important to the consortium ecosystem, which places more emphasis on inter-organizational connections. The main objective of using blockchain in businesses is to increase firm values. The ecosystems, however, diverge due to variations in interaction styles. Internal collaboration is the main focus of intraorganizational interactions in the private ecosystem. Organizations may increase their competitiveness by becoming more efficient and productive thanks to blockchain technology. The adoption of these technologies aims to help businesses become more competitive. By including other organizations in the business activities, inter-organization offers a wider perspective than intra organization does. The use of blockchain technology encourages cooperation between multiple businesses to accomplish shared objectives. To succeed in enhancing their performance, firms must be ready to adopt new paradigms, such as blockchain technology. The matrix shows how collaborating with other firms would increase the utility

of blockchain technology.

A decentralized system is a platform for data and information sharing that needs all users to work together to achieve common objectives. The blind spots that cause organizational restrictions will be lessened through cooperation with other businesses. The application of this technology has a logical outcome, nevertheless, that is at odds with the dominant worldview. Data dispersed throughout a system as a component of the ecosystem is fully accessible to all nodes. It's not the technology itself that makes adoption of this technology so difficult; rather, it's getting used to a new method of doing business. For organizations to function better, they must be ready to incorporate new paradigms, including blockchain technology.

6. Conclusions, Recommendations, and Limitations

This study attempts to describe the business model innovation and enterprise blockchain ecosystem. The results demonstrate that a blockchain plays a crucial role in the enterprise ecosystem because it offers value capture (blockchain increases organizational profitability), value creation (private partnerships activities that explain how blockchain technology contributes), value delivery (the blockchain application in an enterprise ecosystem through smart-contracts), and value proposition (this platform increases current business values by a factor of two). This study illustrates the significant distinctions between various enterprise ecosystem structures based on these data (private and consortium). Through the matrix, this study discusses several environmental aspects. The consortium ecosystem places more emphasis on seeking business value through collaboration than the private ecosystem does on leveraging business value through competition. There are two limitations to this study. First, because of the inherent bias in its qualitative approach, which might result from varying perceptions of the data and information provided. To reduce interpretation bias, this study, nevertheless, certifies the results to the experts and practitioners. The second caution relates to the trustworthiness and validity of the data. To reduce the possibility of inaccurate data or information, this study uses carefully chosen informants and an interviewing procedure. Overall, this work adds to the body of knowledge in the field and advises future research to conduct more in-depth examinations.

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