# Practicality of Implementing Blockchain Technology in Society

**Abstract:**

The emergence of blockchain technology in the past few years has seen an explosive growth in the adoption of blockchain technology in a variety of fields not limited to finance, healthcare, governance, and popular media. While the popularity of blockchain technology has primarily been attributed to the sensalization of cryptocurrencies such as Bitcoin, Etherum, and more recently, with dogecoin, there exists more esoteric applications of blockchain technology outside the scope of these cryptocurrency tokens. This paper will explore and highlight some of the lesser known applications of blockchain technology from a variety of fields.

## Issues with Traditional and Legacy Models of Business:

Society has always been prone to shake ups with the emergence of new and innovative technologies. The advent of the internet in the past decades has seen a rapid transition away from paper; however, despite the widespread ubiquity of the internet, many organizations and businesses still rely on paper documents to conduct and record transactions. This legacy form of record keeping has the associated pitfalls of human errors including loss of physical documentation, data entry errors, and in certain cases, fraud. Even digital documentation can still cause the same errors as is the case with tangible documentations since there does not exist a standard template across industries. Furthermore, real world events are susceptible to influences by central authorities such as regulating bodies or monolithic entities that control a large portion of the market. The case of the 2021 Gamestop shorting by hedge funds is a prime example of

this. However, there have also been numerous detrimental events caused by centralized authorities acting on the market such as with the 2008 Housing Crisis and the subsequent recession associated with it. Clearly, much needed change is necessary to not only ensure events such as these do not occur again, but to also ensure that all aspects of the global economy can operate on a more efficient system, without the need of inefficient or costly operators such as human capital or intermediaries.

**How Blockchain Technologies can Improve the Global Economy:**

As previously stated, the underlying issues with contemporary society lies in the reliance on legacy models of transacting. Human management, intermediaries, as well as centralized authorities often result in prolonged transaction times which is the primary cause of expensive overhead costs. Adoption of blockchain technology is perhaps the most effective way to tackle these issues head on. In this section, the benefits of blockchain technology will be scrutinized to see how it can effectively and efficiently revolutionize the global economy, with examples pertaining to each situation being provided as well.

The peer to peer nature of the blockchain not only allows for near instantaneous transaction times between parties, but also ensures that no intermediary is necessary when conducting these transactions. No where is the issue of intermediary more prevalent than in the financial world. Contemporary exchanges, central banks, and even day to day necessities such as energy infrastructure all require some form of intermediary to conduct transactions between two or more parties. This lengthy process often results in long and limiting transaction times to occur before goods and services are exchanged for payment. In the case of exchanges, whether it is for

commodities, stocks, or securities, the current paradigm for these exchanges is often to place orders with whichever entities that assist in handling transactions. However, even with modern informational infrastructure in place, transactions can still take up to several business days to go through which may result in delays for raising capital or leaving the relevant parties exposed to the risk of not receiving their stock, security, commodity, or payment in time. Central bank issuing bank notes are another example of how the peer to peer benefits of the blockchain can be greatly beneficial. Any nation that issues out currency often does so through financial intermediaries such as through banks. Here the issue of accessibility can come in place as residents within a nation, unable to access any of these banks due to mobility or other forms of restrictions will have no way of obtaining the nation's currency. With a peer to peer system in place, governments can instead directly issue out central bank digital currency (CBDC) directly to their citizens' digital devices such as their phones, greatly cutting down on both costs and time in the traditional system. The last example of how a peer to peer system will greatly benefit the global economy comes in the example of energy infrastructure. Despite often being a nationalized industry, energy distribution is often done through the usage of private companies. Through these energy intermediaries, consumers are usually required to pay a premium for their energy demands. Implementing blockchain in the energy sector will not only ensure more cost effective and efficient methods of distributing energy, but comes with the possibility of individual citizens being incentivized to produce their own sources of energy by issuing token based incentives to share any excess energy produced through methods such as solar or wind. The peer to peer nature of blockchain has many merits, but it is only one of the many benefits associated with blockchain technology.

Perhaps the most known characteristic of blockchain technology is the decentralized nature of it. As the name suggests, a decentralized entity is one that is not subjected to a single entity, allowing for a more democratic method of organization. This decentralized nature of blockchain not only ensures a more secure way of handling transactions, but can also open up the way for more efficient ways of doing transactions through automation. Under a decentralized model of operation, any entity wishing to take down a system would have a hard time since there is no centralized location for any servers unlike in traditional centralized systems. This ensures a great deal of safety and trust between any parties operating with the blockchain. Furthermore, decentralization also allows for a great deal of transparency as anyone would be able to view the history of the blockchain transactions. One prime example of this comes in the context of E-commerce, more specifically,  the applications of transparency and luxury goods. The luxury goods market is often the victim of fraudulent or counterfeit goods as it is often difficult for the everyday consumer to determine the validity of their goods. However, by using blockchain to create a digital pair with any associated good, the consumer will be able to not only confirm the validity of their goods, but can also see the transaction history behind it to ensure that they are indeed getting what they are paying for. The recent AURA project led by Consensys is a prime example of this tracking in action. Producers such as Louis Vutton created a digital twin pairing for their goods in the production stages to allow consumers to confirm that what they are purchasing is legitimate and not counterfeit. The transparent nature of the blockchain allows for some unique and innovative methods to conduct safe transactions, but perhaps the most secure element of the blockchain is the fact that it is immutable in nature.

In the real world, fraud can often arise in situations where human interaction is involved. However, by tokenizing things onto the blockchain, this form of fraud is near non-existent due to blockchain being immutable. As an aside, something being immutable refers to it being unable to be changed once it has been implemented. As new transactions are being tacked onto the blockchain through the forms of new nodes, any past nodes effectively becomes permanent as everyone on the blockchain can see and verify the history of it. This immutable nature of the blockchain has practical applications not only in business, but effectively in all elements of society ranging from governance, law, and even down to the mundane such as in recreational activities like sports and esports. An example of how the immutable nature of the blockchain is of great benefit to society can be seen in the issuance of goods and services. Traditional methods of transactions could easily be altered or manipulated to show that a recipient of a good or services has not settled their payment by any malevolent entities as documentation is often hidden away from all other parties. Alternatively, malevolent entities can alter a person's private information leading to attempts at blackmail or other malicious activities. None of these malicious acts would be possible on a blockchain however, as any attempts to alter previous nodes on the blockchain would simply be a fruitless affair given the fact that all entities on the blockchain can verify the past nodes on their own accord.

Another element of the blockchain comes in the form of interconnection between platforms and protocols on the blockchain. Incompatible systems and bureaucracy in the real world often leads to delays and inefficiency which often results in high overhead costs for the parties involved. This is perhaps most evident in the global supply chain network whereby no standardized way of handling paperwork or conducting transactions is in place, resulting in long delays within the

supply chain. If the same supply chain operated on a blockchain, then the inefficiencies that plague the real world would no longer be present as the usage of smart contracts ensures transparency into the provenance of consumer goods, allows for accurate asset tracking, and enhances licensing of services, products and software. Furthermore, implementation of blockchain will also greatly increase efficiency by cutting down on paperwork and administrative redundancies by automating most of the required logistical challenges into a unified framework. Case and point, the Covantis initiative ensured efficiency in agricultural trading and shipping by reducing paper based processes and the amount of emails exchanged between multiple parties by automating many elements of the transaction.

**Conclusion:**

While an inherently new technology, blockchain has been revolutionizing every society element that seeks to adopt it. Because of the unique characteristics of blockchain technology, including key elements such as its peer to peer capabilities, decentralized nature, ability to be automated, and scalability, many entities are choosing to implement blockchain technologies to drastically optimize their own legacy based system and to cut down on any overhead costs as a result of relying on these legacy systems. These fundamental characteristics of blockchain is what allows for a wide array of practical usage in fields as varied as finance to municipal politics. With every passing week, new ways of thinking and applying blockchain technology are revealed. While innovation is often slow to take root, the pace at which blockchain technology is being adopted is however unprecedented. And while the future is uncertain, blockchain will undoubtedly be a key component to it.