

Trust me, I am Accountable: Factors Influencing Perceived Benefits of Blockchain Technology

Mohamed Abdelhamid

California State University Long Beach

Mohamed.abdelhamid@csulb.edu

Ruchi Isaac

California State University Long Beach

ruchi.isaac01@student.csulb.edu

Katja Crusius

California State University Long Beach

katja.crusius@student.csulb.edu

Extended Abstract

Blockchain is a database mechanism which stores information in the form of blocks and protects it by adding digital signatures, cryptographic hashes and distributed consensus algorithms. Initially Blockchain was exclusively linked to several cryptocurrencies such as Bitcoin, however, there have been efforts to also apply the technology to fields like risk management, healthcare, voting, identity management and many more. The main features of the technology include decentralization, transparency, auditability, and immutability which together all make blockchain an important asset in making transactions more secure and less likely to be manipulated.

The features of blockchain can lead to various benefits, with the main ones being audibility, security, trust, transparency, accountability, and traceability. However, the technology was only created in 2008, so there are still a lot of factors which have not been explored enough causing potential challenges with the application. These challenges include the scalability of blockchain, possible privacy leakages, and selfish mining. For these challenges, there have been approaches in preventing the problems or reducing the results caused by them such as redesigning parts of the technology to optimize storage, mixing and other ways to conceal a user's identity and alterations in the timestamp process to prevent selfish mining. However, the biggest problem with blockchain so far that has not been solved yet is that there is still a lack of awareness of blockchain technology and its potential, preventing its broader application so far. The technical problems described previously can be seen as temporary due to the new nature of blockchain so it is likely there will be solutions, for most of them there are already working approaches, therefore the biggest problem remains the knowledge of blockchain. Studies examining adoption barriers when it comes to blockchain have shown that the knowledge of the technology is the biggest factor preventing its adoption. On the one hand, the potential and benefits of blockchain remains to be realized due to a lack of understanding of the technology. On the other hand, organizations and the decision makers within remain reluctant to implement blockchain technology into their processes because they fail to realize the technology can be beneficial for their business and do not consider it or do not recognize the possibilities blockchain brings with it.

The potential of blockchain technology to revolutionize contemporary markets has raised expectations, but real-world adoption has been limited due to a lack of exploration. Researchers suggest that while the concept of using blockchain technology in finance is logical, there is still much to be explored. Some studies address cybersecurity risks related to blockchain and propose a seven-layer structure to combat

these risks, aiming to promote the use of blockchain technology and encourage risk-averse companies to consider its novel possibilities.

Blockchain technology also plays a critical role in maintaining a secure and decentralized record of transactions for cryptocurrency. One major reason why blockchain adoption is slow is the lack of awareness about the technology. Despite the many potential benefits of blockchain, many individuals and businesses are not familiar with how the technology works, how it can be implemented, and what specific problems it can solve. This lack of understanding is hindering investment and the exploration of ideas, as potential users may not see the value in investing in a technology that they do not fully comprehend. It is largely due to the dominance of technical experts in the blockchain field and their emphasis on technology rather than a business-oriented approach. To address this challenge, there needs to be a focus on improving the user experience for those who are less technically minded, and better educational campaigns to make blockchain knowledge more accessible. Organizations should increase their level of understanding at all levels to fully realize the potential benefits of the technology.

The objective of the study is to investigate factors that influence awareness and perceived benefits of blockchain technology, specifically for decision makers in the industry. We used the dataset of the blockchain survey brand collected by Hyperledger in 2021. The survey included responses from 243 industry professionals. The final dataset included 236 respondents based on complete responses from questions of interests. We identified 6 benefits that we used as dependent variables (trust, accountability, security, transparency, audibility, and traceability) in six models. We used the same 5 predictor variables for all six models. Overall, participants found accountability to be most beneficial aspect of blockchain. Some of the findings include that the perception of benefits varies by region. For example, in c-level executives in Asia find that accountability is the most important benefit of blockchain while none of them considers transparency as a benefit. On the other hand, in North America and Europe, trust is the most benefit. Another finding was that there seem to be a mismatch between perceived and actual familiarity of blockchain technology. We also found that c-level executives are significantly less likely to find blockchain beneficial in terms of security and transparency. On the other hand, c-level executives consider trust as a significant benefit of blockchain. Our recommendations include that future blockchain-based startups should focus on value propositions related to accountability and trust. We also recommend adjusting value propositions based on region and customer base.