



The Blockchain Revolution: The Future of Digital Transactions

Your name, Irvine Valley College
Mentor: Mark Collinson



Abstract

The blockchain, a recent technological invention, is a distributed ledger that removes a need for traditional bank institution or controlling entity and records transactions between two parties efficiently and in a verifiable way (Dos Santos 621). Blockchain technology can lead to the economic revolution through its greater transparency, increased efficiency, and easier traceability.

Due to its decentralized system, the blockchain provides free access to the public to view all transactions, creating transparency in all transactions and ensuring legitimacy. The introduction of a unified system of ownership record and smart contract withdraws an intermediary, reducing the time required in the payment process, thus increasing efficiency in real estate transactions and other payments. Lastly, due to its traceable nature, the blockchain can prevent fraud in exchange businesses and enhance security by enabling real-time tracking and substantiating the authenticity of traded assets. These three aspects of the blockchain have been accepted by firms - for example, NASDAQ announced it will launch a blockchain technology to manage equities among its market platform (Luther 401). Contrary to the public's expectation that the blockchain conflicts with the government's objectives the blockchain can be utilized by the U.S. Federal Reserve System to process payments, verify backgrounds, and monitor transactions required to calculate tax rate for an individual, which demonstrates the possibility of the widespread adoption of the blockchain.

Despite its boundless potential, there are concerns regarding the feasibility of blockchain integration into businesses. In response, the blockchain needs to search for efficient ways to lower the transaction fee. Through this project, I aim to scrutinize the benefits of the blockchain and how it will ultimately bring out an economic revolution.

Introduction

WHAT IS BLOCKCHAIN?

The blockchain is a distributed ledger that removes a need for traditional bank institution or controlling entity and records transactions between two parties efficiently and in a verifiable way (Dos Santos 621). Each block contains digital pieces of information about transactions, such as the date, time, and dollar amount of your most recent purchase, and who is participating in transactions. Each copy of the blockchain is identical and spread across a network of computers, which makes the information more difficult to manipulate. The blockchain adopts a decentralized network that does not require authoritative sectors and entities.

CONCERNS AND SOLUTIONS

- 1) What is the difference between blockchain and bitcoin?
 - Blockchain is a technology that stores or records the information of the transaction for the sake of transparency. On the other hand, the bitcoin protocol is a new electronic cash system that reduces transaction charges with no trusted third party. Although bitcoin is built on the blockchain, it pursues anonymity that contrasts with the objective of the blockchain (Bierer 81).
- 2) How can we trust blockchain without an authority?
 - Identical copies of the blockchain spread across a network of computers. Therefore, a hacker would need to manipulate every copy of the blockchain on the network in order to avoid being traced or caught of changing information (Dos Santos 622).
- 3) Can we keep our identity confidential?
 - Instead of using your actual name, a user's purchase is recorded without any identifying information using a unique "digital signature," which is similar to a username.

Methods

Data were collected from academic journals and the survey conducted by Deloitte. The survey has a sample of 1,386 senior executives who have a broad understanding about the blockchain in a dozen countries (Brazil, Canada, China, Germany, Hong Kong, Israel, Luxembourg, Singapore, Switzerland, United Arab Emirates, United Kingdom, and the United States) at companies with more than \$100 million of revenue. These sources were used to examine the current use of blockchain in various facilities and institutions and firms' perceptions regarding the adoption of the technology. Based on these sources, my research will evaluate the potential applications of blockchain.

Discussion

Healthcare

MedRec, a healthcare company with blockchain technology, utilizes blockchain to allow providers to access files and information about patients who move between different providers (Jurado 686). Since it operates a single platform that connects clinicians, facilities, and patients, it facilitates the effective communication and transmission of essential information.

Entertainment

Spotify acquired blockchain startup Mediachain Labs to solve the attribution problem via a decentralized database to help artists connect with licensing agreements.

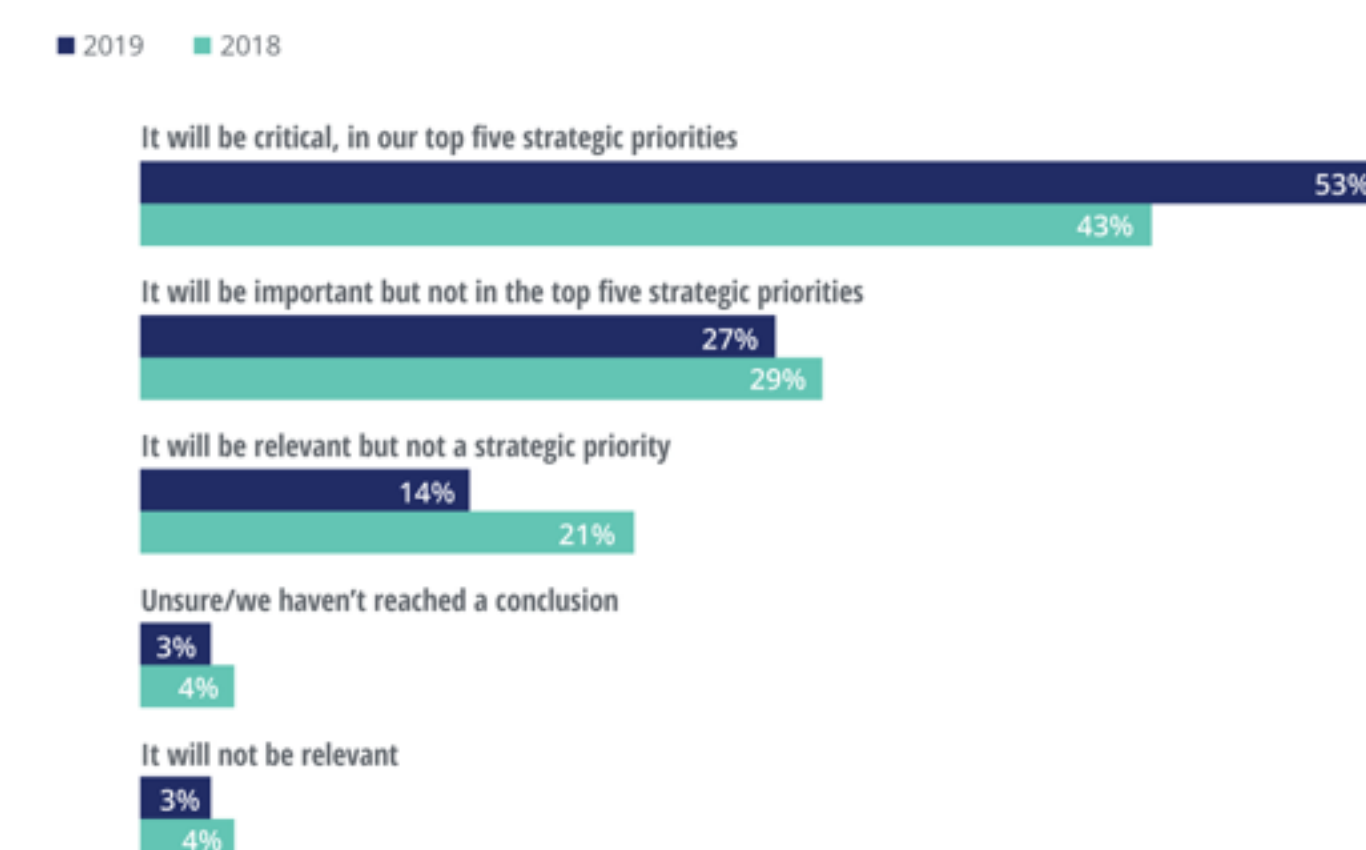
Supply Chains and Logistics

IBM Blockchain uses blockchain technology to keep track of the status and condition of every product on its supply chain, which ensures transparency with a unified system of ownership and real-time tracking.

Limitation

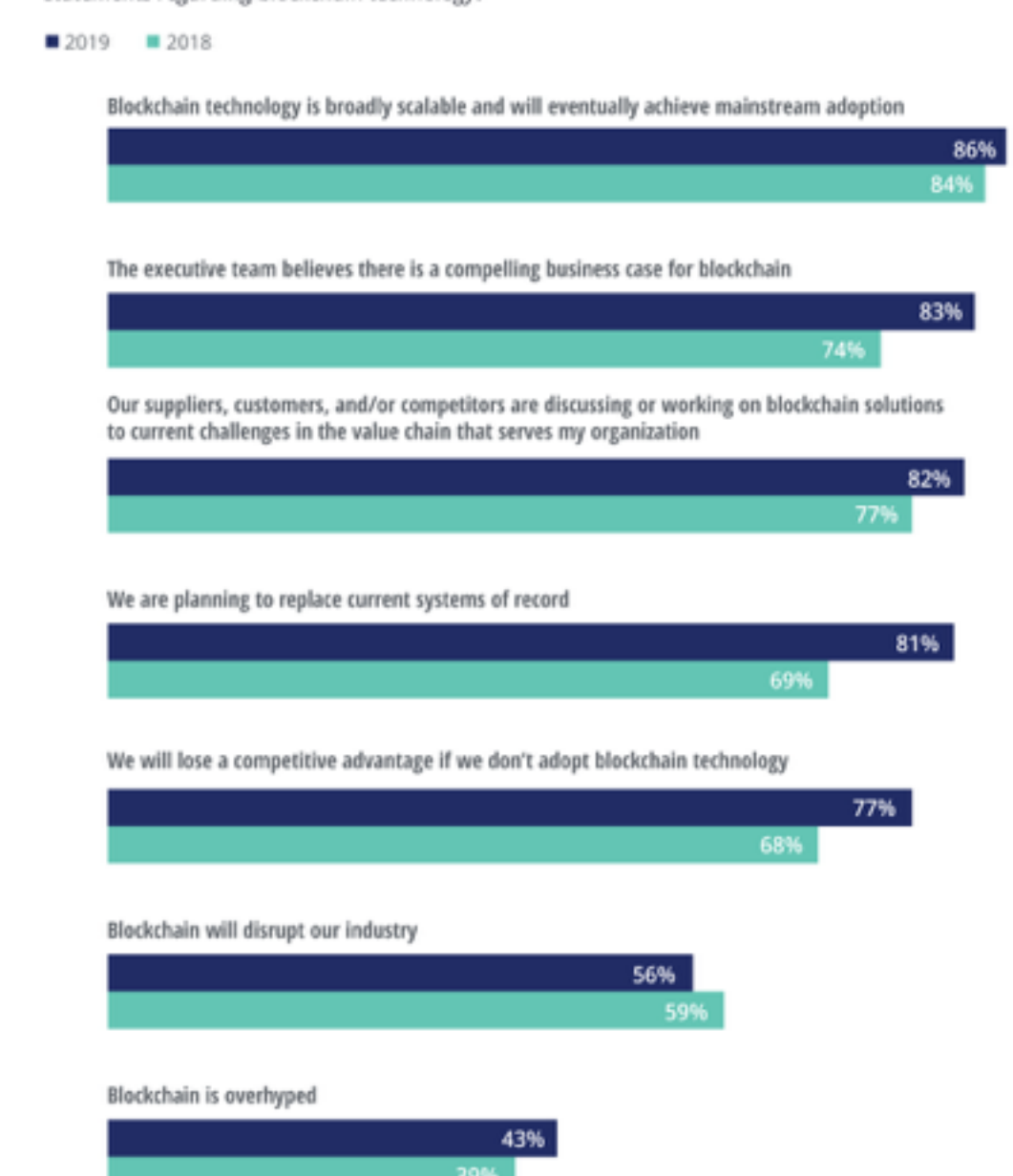
- People still lack a profound understanding of blockchain technology,
- The blockchain takes a longer time for transactions because it relies on the majority of nodes who authorize them rather than having a controlling entity who decides the speed and validation of transactions.
- One of the blockchain applications, Bitcoin, still has high transaction fees, which makes the flow of money slow and expensive.

FIGURE 1
Views of blockchain's relevance within organizations (2019 vs. 2018)
Most respondents now see blockchain as a top-five strategic priority, a jump of 10 percentage points over 2018.
Survey question: Which of the following best describes how you currently view the relevance of blockchain to your organization or project in the coming 24 months?



N=1,386 (2019 global enterprise); N=1,053 (2018 global enterprise)
Note: Some percentages may not total 100 percent due to rounding.
Source: Deloitte's Global Blockchain Survey, 2018 and 2019.

FIGURE 2
Survey respondents' attitudes on blockchain and its adoption (2019 vs. 2018)
There was a general improvement in attitudes about blockchain over the past year.
Survey question: What is your level of agreement or disagreement with each of the following statements regarding blockchain technology?



N=1,386 (2019 global enterprise); N=1,053 (2018 global enterprise)
Note: Percentages indicate respondents who strongly or somewhat agree with each statement.
Source: Deloitte's Global Blockchain Survey, 2018 and 2019.

54% of respondents consider the blockchain as one of their five strategic priorities. The increase in the percentage from 43% to 53% implies that companies obtained broader insight into the blockchain technology that is gradually gaining recognition and popularity.

86% of companies believe blockchain technology will be widely adopted and used in the future. This demonstrates that companies will more likely adopt it when it proves its feasibility and reliability.

Potential Application (Continued)

Government

- Tax collection
 - Blockchain could be applied to tax procedures, such as withholding tax, stamp duties, and insurance premium taxes. This could be particularly useful in tracking if and where VAT has been paid, and in doing so reduce VAT fraud.
 - It makes easier to detect fraud and errors since the system provides clear and transparent information about transactions. Blockchain reduces the administrative burden and collects tax at a lower cost.
- Voting
 - Blockchain systems allow voters to submit their vote without revealing their identity or political preferences to the public. Its distributed decentralization eliminates manipulation and multiple voting by giving each ID one vote that is easily verified. This also gives voters more power in deciding the government policy, which solidifies direct democracy.
 - Horizon State created a secure digital ballot box that is designed to effectively solve frauds in today's voting procedures. Participants will use a mobile phone or PC to log into an immutable blockchain and to reliably verify the outcome of the election.
 - It eliminates manipulation and recording errors. It also aims to encourage participation by lowering the cost of ballots

Health Care

- According to a 2016 report by the Government Accountability Office (GAO), current healthcare institutions have obsolete computer systems that risk the health of patients due to slower transmission of health records (5). With the use of the blockchain, healthcare systems could store and update patient records across multiple facilities while keeping them confidential. This would enable facilities to distribute more time and resources for the health of patients.
- Consulting firm Deloitte states that "blockchain technology has the potential to transform healthcare, placing the patient at the center of the healthcare ecosystem and increasing the security, privacy, and interoperability of health data." (Pawczuk, Massey, & Holdowsky 2019)

Real Estate

- The blockchain can be applied in Real Estate, an industry that struggles with bureaucracy and fraud. The blockchain could help to prevent the record from being manipulated by verifying ownership.

Conclusion

The current development of the blockchain has numerous limitations, such as complexity, longer transaction time, and high fees. Nonetheless, blockchain technology has endless potential to revolutionize our economy from banking institutions, businesses, to government. Many companies are now looking at implementing the underlying technology to areas as diverse as trade finance, gaming, casinos, marketing, and logistics. The key to its feasibility is experimentation and the courage to try different applications. As more firms adopt technology, it will maximize its benefits of guaranteeing security and transparency.

Works Cited and Consulted

Bierer, Timothy. "Hashing It Out: Problems and Solutions Concerning Cryptocurrency Used as Article 9 Collateral." *Journal of Law, Technology & the Internet*, vol. 7, no. 1, Jan. 2016, pp. 79-94. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=119521190&site=ehost-live&scope=site.

Dos Santos, Renato P. "On the Philosophy of Bitcoin/Blockchain Technology: Is It a Chaotic, Complex System?" *Metaphilosophy*, vol. 48, no. 5, Oct. 2017, pp. 620-633. EBSCOhost, doi:10.1111/meta.12266.

Jurado, Camille, et al. "The Electronic Pharmaceutical Record: A New Method for Medication Reconciliation." *Journal of Evaluation in Clinical Practice*, vol. 24, no. 4, Aug. 2018, pp. 681-687. EBSCOhost, doi:10.1111/jep.12942.Pawczuk, Linda, et al. "Deloitte's 2019 Global Blockchain Survey." *Deloitte Insights*, Deloitte, 6 May 2019, www2.deloitte.com/us/en/insights/topics/understanding-blockchain-potential/global-blockchain-survey.html?id=us:2ps:3gl:confidence:eng:cons:32019:nonem:na:0WYqNxnk:1141606379:346859115240:b:Brand_Blockchain:Brand_Blockchain_Survey_BMM:br.

United States, Congress. "Performance and Accountability Report: Fiscal Year 2016." *Performance and Accountability Report: Fiscal Year 2016*, 15 Nov. 2016. https://www.gao.gov/assets/690/681058.pdf.

Potential Application

Business

- Smart contract
 - Identity and data secrecy can be improved through a smart contract, a self-executing contract between buyer and seller being directly written into a decentralized blockchain network. It enables trusted transactions among anonymous parties without the need for a central authority, legal system, or external enforcement mechanism. Partnering with digital currencies, blockchain could allow instant transfers of money between countries without major fees and delay times.
- Real-time tracking
 - It can be effective in the food industry because it will allow producers, suppliers, manufacturers, retailers can ensure food safety by tracking the location and status of food products.