

Blockchain: A Technology of the Future for all Industries

indxx

September 2019

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Executive Summary

This report is intended to examine blockchain technology, how it works, and the many potential advantages that it offers.

Some key points of the report are as follows:

1. Blockchain technology is one of the most disruptive forces in the past decade, and interest in blockchain has exploded around the world across industries and sectors over the past year or so.
2. Blockchain technology's global market size is expected to reach US\$ 57.64billion by 2025, expanding at a massive CAGR of 69.4% between 2019 and 2025. This is due to its inherent advantages, such as eradicating a financial institution's requirement to validate transactions, reduce duplicative record keeping, eliminate reconciliation, minimize error rates, and facilitate quicker settlement.
3. The increasing demand for this technology across multiple and diverse sectors, such as financial services, consumer and industrial products, technology, media & telecommunications, healthcare, transport and the public/government sector is also responsible for driving development.

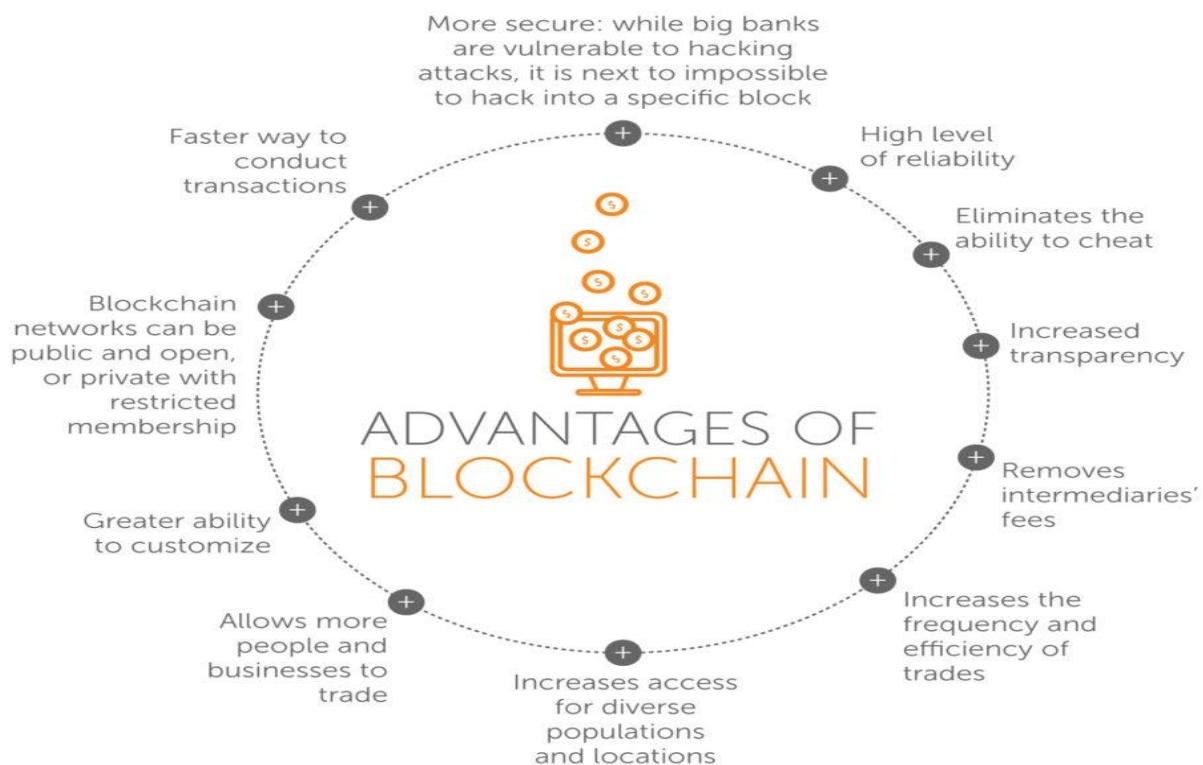
Introduction

It's all about technology in the 21st century. With the growing need for modernization in our lives, individuals are increasingly open to adopting new technologies. From using a remote to control equipment, using speech recognition technology, Augmented Reality (think the popular mobile game 'Pokemon GO') and IoT, technology has been integrating itself into our daily lives faster and faster over the previous decade. Today, there is a fresh addition to the pack: 'blockchain technology.'

The word 'blockchain technology' is used by people to mean different things, and it can be confusing. Sometimes people talk about the Bitcoin blockchain, sometimes it's the blockchain of Ethereum (another digital currency), sometimes it's other virtual currencies or digital tokens, and sometimes it's smart contracts or something else. Most of the time, however, when people talk about blockchain technology they mean distributed ledgers, meaning a list of transactions (i.e. a ledger) replicated across a number of computers instead of being stored on a central server (i.e. distributed). We on the other hand see blockchain technology as a technology collection, a little like a bag of Legos. You can bring distinct bricks out of the bag and bring them together to generate distinct outcomes in distinct ways.

While the details on blockchain technology are complex, it can be defined in the easiest possible terms as a data structure that maintains transactional documents and ensures safety, transparency and decentralization. Think of it as a chain of documents or transactions stored in "blocks" of data that no single authority controls, and is fully open and viewable to everyone on the network. Each transaction is secured with a digital signature proving its authenticity on the blockchain. The data stored on the blockchain is tamper-proof and can not be changed due to the use of encryption and digital signatures. Therefore, once an information is stored on a blockchain, it is extremely difficult to change or alter.

If we loosely compare blockchain with a traditional database, a blockchain is a system containing an ordinary database and some additional software validating the submitted records in accordance with previously agreed rules before adding new records to the database. This additional software listens and sends fresh documents to all nodes or colleagues involved in the network, ensuring that each one has the same data in its database. Hence, we can technically look at blockchain as a new method of data storage.



Blockchain is a new name in the technology world, but it's widely expected to last and grow. Even in the early phases, from its very first implementation with cryptocurrencies, the technology has acquired enormous popularity. With each passing day, more regions of applications are found and tested. As blockchain technology becomes increasingly utilized and accepted globally, it's changing the way organizations conduct business and opening up revolutionary new opportunities.

Outlook of Blockchain Technology

Blockchain technology is among the most disruptive forces of the past decade. Over the last year or so, interest in blockchain has exploded on a global scale throughout sectors and industries. New blockchain-based startups have emerged onto the scene and existing players have spun up projects to investigate the technology. But with almost two years of apparently non-stop blockchain hype behind us, a big question arises as to how the industry will perform in the future.

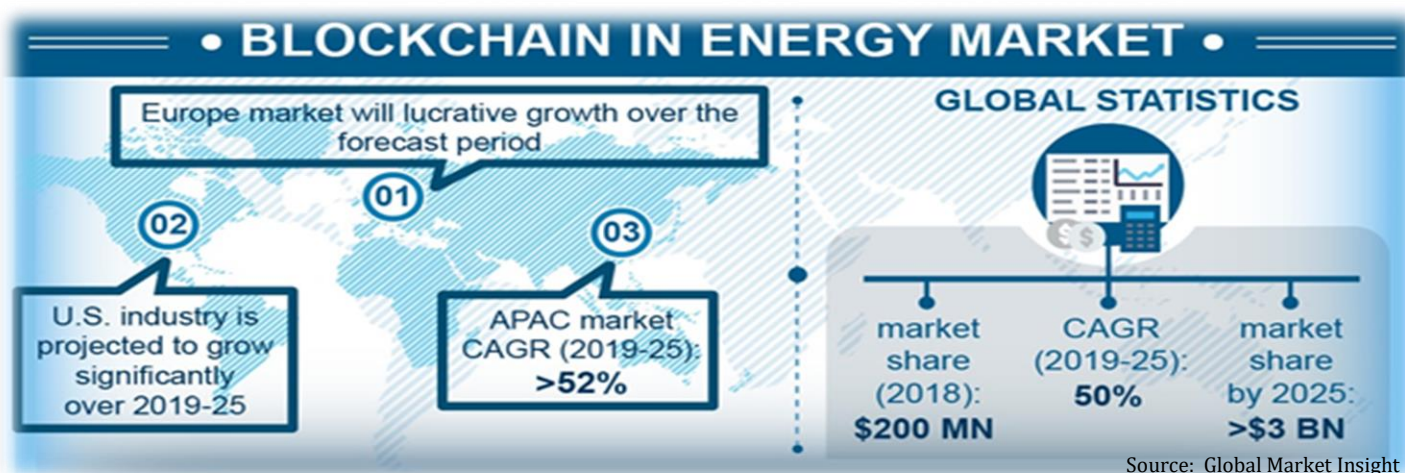
The worldwide market size of blockchain technology is anticipated to reach \$57.64 billion by 2025, registering a CAGR of 69.4% between 2019 to 2025ⁱ. The blockchain market will expand quickly owing to various advantages, such as eradicating a financial institution's requirement to validate transactions, reduce duplicative record keeping, eliminate reconciliation, minimize error rates, and facilitate quicker settlement. The databases could become universal in nature with the use of this technology, thereby enabling multiple organizations to use them simultaneously to bring distinct systems closer together and help improve effectiveness and efficiency.

The growing demand for this technology across sectors such as financial services, consumer or industrial products, technology, media & telecom, healthcare, transportation, and the public/government sector is one of the main drivers of its adoption. Other drivers include:

1. The growing interest of the Banking, Financial Services, and Insurance (BFSI) sector.
2. The increasing acceptance of cryptocurrencies by merchants. The probable growth opportunities of this technology further include the instant settlement of various financial transactions and achieving optimized settlement options for the netting and clearing process. This saves time and reduces overall transaction costs.

Besides the above, the following are a few other important points to be considered:

1. The financial services segment dominated the market in 2018 and its dominance is anticipated to remain. Growing technology investments by different financial institutions in conjunction with important technology players are anticipated to further enhance the effectiveness of the underlying financial processes and minimize the danger.
2. Over the next six years, the Asia Pacific area is anticipated to emerge as the fastest-growing regional segment. The increasing adoption of blockchain technology by banks and other financial institutions to minimize operating costs, increase security, and streamline company activities is anticipated to drive regional market growth.
3. From 2019 to 2025, the application & solution segment is expected to grow at CAGR of 71.2%. This development can be ascribed to providers capacity to deliver services to businesses by providing timely authentication and reconciliation and decreasing duplication of informationⁱⁱ.



In the future, Blockchain is also expected to revolutionize business processes in many industries, but it takes time and effort to adopt them. Nonetheless, we should expect organizations to end up accepting blockchain advantages in the near future and continue using them to improve their economic services.

Indxx Blockchain Index

The Indxx Blockchain Index is designed to track the performance of companies that are either actively using, investing in, developing, or have products that are poised to benefit from blockchain technology. The index seeks to include only companies that have devoted material resources or made material commitments to the use of blockchain technologies.

The index has been licensed by ETF provider First Trust Advisors as the underlying benchmark for the 'First Trust Indxx Innovative Transaction & Process ETF' which is currently available as an ETF in the US (Ticker: LEGR), Canada (Ticker: BLCK) and Europe (Ticker: BLOK).

Figure 1 Index Performance: Indxx Blockchain Index v/s Indxx 500

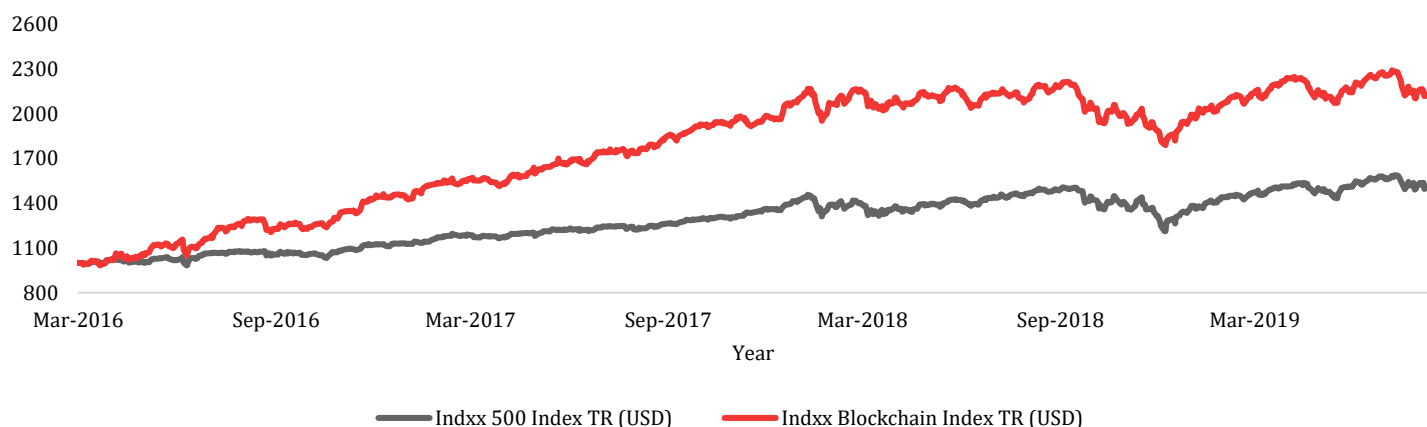


Table 1 Index Risk and Key Statistics: Indxx Blockchain Index*

Statistic	QTD	YTD	1 Year	3 Year	Since Base Date
Beta	0.85	0.92	0.76	0.83	0.88
Correlation*	0.94	0.90	0.84	0.80	0.78
Returns	-4.23%	14.35%	-1.60%	18.13%	24.56%
Deviation	15.63%	13.94%	15.27%	13.42%	14.29%

*(Base date : 03/16/2016, Data as of 08/27/2019, Correlation is calculated with respect to the Indxx 500 TR Index)

Table 2 Indxx 500 Index (TR) Risk & Key Statistics*

Statistic	QTD	YTD	1 Year	3 Year	Since Base Date
Returns	-2.02%	16.54%	1.35%	12.17%	8.94%
Deviation	15.43%	13.70%	16.29%	12.63%	18.19%

*(Base date : 04/29/2005, Data as of 08/27/2019)

Table 3 Top 5 "Indxx Blockchain Index" Constituents

S.No.	Name	Market Capitalization (\$ Bn)
1.	Advanced Micro Devices	32.78
2.	Microsoft Corp.	1036
3.	Accenture PLC-CL A	124.54
4.	Wirecard AG	17.83
5.	Texas Instruments Inc.	114.07

*(Data as of 08/27/2019)

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References:

ⁱ Grand View Research Inc- 'Blockchain Technology Market Size, Share, & Trends Analysis Report By Type, By Component, By Application, By Enterprise Size, By End Use, By Region, And Segment Forecasts, 2019 – 2025' report dated July, 2019

ⁱⁱ Grand View Research Inc- 'Blockchain Technology Market Size, Share, & Trends Analysis Report By Type, By Component, By Application, By Enterprise Size, By End Use, By Region, And Segment Forecasts, 2019 – 2025' report dated July, 2019