

Blockchain: Exploring What It Is, Growing Applications Including Relationship to Web 3 (a Survey Research)

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Abstract

Blockchain appears to have a promising future as a database technology useful to many industries. The downside appears to be limitations as to how large the chain can grow and speed of processing. Many technology geeks have ideas about how to solve these problems. Blockchain is still a relatively obscure technology. This research aims at raising awareness about blockchain and its spreading applications and its relationship to Web 3.

According to IBM, a leading tech giant, as a business adapts to an ever-changing new normal, extending collaboration and optimization beyond its boundaries, blockchain is an instrument that can foster next-level growth. Transformation is not always easy, and technology should not stand in the way. The basic purpose of blockchain is to drive operational agility and open new revenue streams through trusted data exchange and workflow automation beyond the boundaries of the organization. IBM® is leading the business world into a new era of collaboration and innovation to achieve blockchain success and accelerate positive business outcomes with proven design methodologies and composable capabilities. Survey shows that many companies are catching the ‘train’ of blockchain.

Basic information sources:

<https://www.ibm.com/topics/blockchain>

- Blockchain fundamentals
- How blockchain works
- Blockchain in action: use cases
- Hyperledger, hosted by the Linux Foundation
- Ten steps to your first blockchain application

<https://www.ibm.com/blockchain>

IBM points to solutions and benefits with specific case studies

[IBM Blockchain Platform: Hyperledger Fabric Support Edition | IBM](#)

More on the fundamentals and applications:

- [Here's what the blockchain does and what it means to you.](#)
- [Train to Become A Blockchain Developer](#)
- [How it works](#)
- [17 Uses of Blockchain Applications That Are Transforming Society](#)
- [Blockchain Business](#)
- [Smart Property](#)
- [Where the blockchain comes in](#)
- [Smart Contracts](#)
- [Blockchain Identity](#)
- [Blockchain Applications: Conclusion](#)

<https://brave.com/web3/intro-to-blockchain/#what-is-blockchain-technology>

-where do new blocks on a chain come from?

-how do nodes add new blocks in the chain?

-how to ensure that blocks are authentic?

-what does blockchain have to do with web3?

More on applications

The professional services industry has taken a special interest in the cryptocurrency technology as many companies are in the process of adopting blockchain technology into their operations. The Big Four accounting firms, Deloitte, Ernst & Young, PricewaterhouseCoopers, and KPMG are no different. In fact, owing to their huge client base and influential position in the industry segment, the companies have gained the recognition of being the most active members of the blockchain revolution.

Web 3

[Web3 – Developer Solutions | Microsoft Azure](#)

Major conference

[FinTech Conference – FinTech Conference in London is FinTech World Forum 2023 based in London UK Europe as one of leading FinTech events 2023 for global financial, payments, lending, blockchain and banking technology industry. \(fintechconferences.com\)](#)

Widespread applications

[33 Top Blockchain Applications to Know for 2023 | Built In](#)

How Blockchain is transforming society

17 applications that are transforming society: [17 Blockchain Applications That Are Transforming Society - Blockgeeks](#)

Asset Management: Trade Processing and Settlement

Insurance: Claims processing

Payments: Cross-Border Payments

Unconventional money lenders/ hard money lending

Your car/ smartphone

Blockchain Internet-of-Things (IoT)

Smart Appliances

Supply Chain Sensors

Blockchain Healthcare

Blockchain music

Blockchain Government

Public value/ community

Vested responsibility

Blockchain Identity

Passports

Birth, wedding, and death certificates

Personal Identification

Blockchain in the banking sector facing difficulties

<https://corpgov.law.harvard.edu/2022/01/28/blockchain-in-the-banking-sector-a-review-of-the-landscape-and-opportunities/>

Blockchain development:

[Blockchain Development - Mobile Programming LLC](#)

Blockchain alternative

[#1 IBM Blockchain Alternative - Built for the Enterprise \(kaleido.io\)](#)

Learning about blockchain

3 in 1 book on the subject:



The three in one guide to blockchain technology. Book 1: The more sophisticated specifics of blockchain programming will be discussed in this book. Expand your knowledge about this popular way of using software and Ethereum to achieve monetary and accuracy purposes. Book 2: You've learned the specifics of blockchain technology. Now it's time for you to apply these things in real life. Book 3: A different angle to the elaborate uses of blockchain technology.

Blockchain Programming with JavaScript: [Learn Blockchain Programming with JavaScript \(Paperback\) - Walmart.com](#)

Education on the subject:

[Berkeley's Blockchain and Cryptocurrencies Online Program \(emeritus.org\)](#)

In this program, you will:

- Gain a comprehensive understanding of blockchain, cryptocurrencies, decentralized finance (DeFi), non-fungible tokens (NFTs), and decentralized autonomous organizations (DAOs).
- Explore current developments, emerging trends, and regulatory issues regarding blockchain technology and the crypto market.

- Apply frameworks and strategic applications of blockchain technology to identify innovation opportunities in businesses, governments, nonprofits, or new ventures.
- Build strategies that leverage blockchain and cryptocurrencies to address a challenge faced by your organization or industry.

It is aimed at:

Progressive leaders in both the public and private sectors need to understand what new digital technologies such as blockchain can and can't do for their organizations. If you find yourself asking what the opportunities and the limitations of blockchain are, then this program is for you. Representative roles and industries that can benefit include:

- Business/technology strategists and consultants
- Entrepreneurs who are interested in launching new ventures related to blockchain or cryptocurrencies.
- Financial and banking professionals, including those in risk management and regulatory roles.
- Government officials, policy makers, and civil servants from around the globe, as this program takes a truly global perspective.
- Insurance and real estate professionals
- Investors who want to understand the developing blockchain ecosystem to inform investment decisions.
- IT and security professionals
- Supply chain management professionals

MIT https://mit-online.getsmarter.com/presentations/lp/mit-blockchain-technologies-online-short-course/?cid=15145584613&utm_contentid=558300474891&ef_id=c:558300474891_d:c_n:g_ti:kwd-306647262360_p:k:blockchain%20books_m:e_a:132226280074&gclid=CjwKCAjwq-WgBhBMEiwAzKSH6FNhJ9LRsDxsXib1MgTgPZnRpn1_jVzc_5uT3n065msu-BkM3rYMyRoCr8gQAvD_BwE&gclsrc=aw.ds

ON COMPLETION OF THIS PROGRAM, YOU'LL WALK AWAY WITH:

- 1** A deeper understanding of the **capabilities and limitations of blockchain technology**, enabling you to assess which business problems it can solve.
- 2** A framework for a **blockchain-based strategy** that addresses a challenge within your own business context.
- 3** Knowledge of **how blockchain powers applications like bitcoin and other token-based initiatives**, guided by crypto economics expert Christian Catalini.

Columbia University blockchain in business https://online1.gsb.columbia.edu/blockchain-in-business?utm_source=Google&utm_network=g&utm_medium=c&utm_term=blockchain

[%20program&utm_location=9004331&utm_campaign_id=17376322200&utm_adset_id=136881068546&utm_ad_id=601256118918&gclid=Cj0KCQjwt_qgBhDFARIsABcDjOfJuxRydKWYmPrZ0Kk_9ZpIwsE1ptoos-jgBSu_bSfjMfzvdCJqRq8aAjo6EALw_wcB](#)

Conclusion

The technological world does not stop progressing. I remember my conversation with Alvin Toffler at UNITAR and his prediction in terms of waves, which he said will not stop with the third one and will continue on. The internet, the web and telecommunication have kept on expanding, I also remember my conversation with other university professors at the IN3 in Barcelona; some were predicting that as the internet expands it would reach a point where it would crash, whereas I was among those saying that it will keep on growing along with the web and telecommunication and we had the Internet of Things (IoT). Today we are talking of Web 3 in context of blockchain. This research paper will also help us understand the new technological environment and learn to grow with it, even Berkely, MIT and Columbia are giving us a helping hand. It is worth having a look at the broader context, both theoretical and practical, leading us to the world of quantum physics, for instance Computers and Smartphone: **The entire working process of computers is based on quantum physics.** The phenomenon of band structure, which supports modern semiconductor-based electronics, is fundamentally a quantum mechanism. Lasers and Telecommunication: The base of fiber optic telecommunication is quantum physics.

What does quantum computing mean for blockchain

<https://www.weforum.org/agenda/2022/04/could-quantum-computers-steal-the-bitcoins-straight-out-of-your-wallet/>

Quantum computing could upend existing assumptions about the security of the blockchain.

In the wrong hands, sophisticated attackers could seize cryptos directly from a wallet, or even as they are traded from one wallet to another.

While the technology is not yet ready for this, we must prepare now to mitigate the threats of the future.