

Unleashing Blockchain's Transformative Potential

Research Prompt

"Evaluate the significance of blockchain technology beyond cryptocurrencies."

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Understanding Blockchain Technology

Search terms:

- *Definition of blockchain technology*
- *How does blockchain technology work*
- *Key features of blockchain technology*

Search Term	Relevant Excerpt	Citation Source
<i>Definition of blockchain technology</i>	... In the long term, a nationwide blockchain network for electronic medical records may improve efficiencies and support better health outcomes for patients. What is blockchain? At its core, blockchain is a distributed system recording and storing transaction records....	Blockchain: Opportunities for health care Deloitte US
<i>Definition of blockchain technology</i>	... What advantages blockchain technology offers to supply chains? A blockchain is a distributed ledger technology. In this ledger, transactions are recorded as a series of code blocks that constitute a chain....	Blockchain in Supply Chain: Benefits & Top Use Cases in 2023
<i>Definition of blockchain technology</i>	... Hence, the maritime industry needs to speed up the rate of digitalization to improve its efficiency and reduce the costs for survivability and long-term sustainability. The blockchain technology refers to "a distributed database of records, or public ledger of all transactions or digital events that have been executed and shared among participating parties" ...	The key challenges and critical success factors of blockchain ...
<i>How does blockchain technology work</i>	As a database, blockchain stores information in a digital format. Blockchain technology stores data in blocks and link them together to form a chain. The blocks have a specific capacity and, when filled, are closed and linked to the previous block....	Advantages And Disadvantages Of Blockchain Technology
<i>How does blockchain technology work</i>	... The article highlights some of the benefits of blockchain technology for achieving sustainable development goals. The blockchain technology itself is briefly described....	Some aspects of using blockchain in supply chain management in the framework of achieving sustainable

Search Term	Relevant Excerpt	Citation Source
		development goals
<i>How does blockchain technology work</i>	... With its full deployment, patients can be truly focused on at the center of all operations, which in turn will also be entirely overhauled with better security, privacy and accessibility. But how exactly does blockchain enable all this? How is the health industry fully utilizing this vastly capable cutting-edge technology? What Is Blockchain?...	The Future Of Blockchain In Healthcare
<i>Key features of blockchain technology</i>	... Hash is a unique address assigned to each block during its creation and any further modification in the block will lead to a change in its hash. Features of Blockchain Let's have a look at the primary features of the blockchain technology. 1. Immutable Immutability means that the blockchain is a permanent and unalterable network....	Features of Blockchain - GeeksforGeeks
<i>Key features of blockchain technology</i>	A study of scientific views on the legal nature of a smart contract is presented. The features of blockchain technology, which predetermine the features of smart contracts and the specifics of their application, are considered. The definition of the place of a smart contract in the system of contracts is proposed....	LEGAL REGULATION OF SMART CONTRACTS IN THE AGE OF THE DIGITAL ECONOMY
<i>Key features of blockchain technology</i>	... Every person within the network receives a copy of the transactions as well. Because of these features, blockchain technology is resistant to distributed denial-of-service attacks, hackers, and other types of fraud. Without the threat of cyber attacks, the expense of conducting business is reduced, helping all parties involved save money and stress....	How Blockchain Technology Is Changing the Financial Sector ...

Applications of Blockchain Technology

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Supply Chain Management

Search terms:

- *Benefits of blockchain in supply chain management*
- *Blockchain technology in supply chain*

Search Term	Relevant Excerpt	Citation Source
<i>Benefits of blockchain in supply chain management</i>	... This paper is a survey on blockchain in supply chain management. This paper focuses on the benefits of applying blockchain in supply chain management....	Assessing Blockchain In Supply Chain Management
<i>Benefits of blockchain in supply chain management</i>	... Therefore, this makes blockchain a highly verifiable, anti-tampering, transparent technology in business, and especially in supply chain management. Now we can focus on what kind of advantages this functioning of blockchain brings to supply chains. Here is the overlook of some fundamental ones....	Blockchain in Supply Chain: Benefits & Top Use Cases in 2023
<i>Benefits of blockchain in supply chain management</i>	One of the most promising applications of emerging blockchain technology is supply chain management. Blockchain-the digital record-keeping system developed for cryptocurrency networks-can help supply chain partners with some of their challenges by creating a complete, transparent, tamperproof history of the information flows, inventory flows, and financial flows in transactions....	Building a Transparent Supply Chain
<i>Blockchain technology in supply chain</i>	... Blockchain is also advantageous for ensuring and sustaining consensus over the process because all the parties know that the transactions are automated and valid. Use Cases of Blockchain Technology in Supply Chain Although it is still early to say that blockchain technology dominates supply chains, businesses are leveraging it in various areas and steps of their supply chain....	Blockchain in Supply Chain: Benefits & Top Use Cases in 2023
	... One emerging discussion is the concept of stablecoins, cryptocurrencies pegged to a stable asset like the U.S. dollar and may become a critical component in decentralized finance (DeFi). Blockchain	Cryptocurrency & Blockchain Technology -

Search Term	Relevant Excerpt	Citation Source
<i>Blockchain technology in supply chain</i>	Technology Perhaps in response to the 2008 global financial industry crash, a person, or an entity, named Satoshi Nakamoto developed a protocol for a peer-to-peer electronic cash system....	Fintech: Financial ...
<i>Blockchain technology in supply chain</i>	... In this article, we will investigate how blockchain technology can be used in supply chains, what advantages it brings to the area, and its top use cases in the supply chain. What advantages blockchain technology offers to supply chains? A blockchain is a distributed ledger technology....	Blockchain in Supply Chain: Benefits & Top Use Cases in 2023

Healthcare

Search terms:

- *Blockchain technology in healthcare*
- *Use cases of blockchain in the healthcare industry*

Search Term	Relevant Excerpt	Citation Source
<i>Blockchain technology in healthcare</i>	... Some say that Blockchain 3.0 will revolutionize the throughput of blockchain technology, which is currently one of the most important challenges of blockchain technology [2]. Many aspects of blockchain technology, such as the immutability of the data stored in a blockchain, are drawing the attention of the healthcare sector, and rosy prospects for many available cases are being discussed. Blockchain technology is expected to improve medical record management and the insurance claim process, accelerate clinical and biomedical research, and advance biomedical and healthcare data ledger [2]. These expectations are based on the key aspects of blockchain technology, such as decentralized management, immutable audit trail, data provenance, robustness, and improved security and privacy....	Blockchain Technology and Healthcare - PMC
<i>Blockchain technology in healthcare</i>	... In the last couple of years, the upsurge in blockchain technology has obliged scholars and specialists to scrutinize new ways to apply blockchain technology with a wide range of domains. The dramatic increase in blockchain technology has provided many new application opportunities, including healthcare applications. This survey provides a comprehensive review of emerging blockchain-based healthcare technologies and related applications....	Blockchain Technology in Healthcare: A Comprehensive Review and Directions for Future Research
<i>Blockchain technology in healthcare</i>	... However, some important information, such as information on drug allergies, can be published in a public blockchain. Blockchain technology is constantly improving rather than completed, and it has several potential challenges that must be addressed for it to be adopted for biomedical and healthcare applications. The first challenge involves transparency and confidentiality....	Blockchain Technology and Healthcare - PMC
<i>Use cases of blockchain in the healthcare industry</i>	Here are nine promising use cases for blockchain in healthcare. Medical record management Medical records can be safely stored and managed using blockchain, improving accessibility for patients and healthcare professionals....	9 promising blockchain use cases in healthcare industry
<i>Use cases of blockchain in the</i>	Healthcare is one industry in which blockchain is expected to have significant impacts. Research in this area is relatively new but growing rapidly; so, health informatics researchers and practitioners are always struggling to keep pace with research progress in this area....	Blockchain Technology in Healthcare: A

Search Term	Relevant Excerpt	Citation Source
healthcare industry		Systematic Review
Use cases of blockchain in the healthcare industry	... This is for good reason. Simply put, blockchain holds the potential to revolutionize healthcare. With its full deployment, patients can be truly focused on at the center of all operations, which in turn will also be entirely overhauled with better security, privacy and accessibility....	The Future Of Blockchain In Healthcare

Finance and Banking

Search terms:

- *Blockchain technology in finance*
- *Impact of blockchain on banking sector*

Search Term	Relevant Excerpt	Citation Source
<i>Blockchain technology in finance</i>	... When it comes to secure communication, Blockchain technology is always evolving and has the opportunity to deliver about substantial changes in how we work and live in the 21st century. Blockchain technology is continually evolving and become the next paradigms shifting technology. Our new problem is to figure out how we will keep up with the technological developments brought about by this revolutionary technology....	A Statistical Perspective on Advancement in Blockchain Technology
<i>Blockchain technology in finance</i>	... The proposed technology aims to make the supply chain more efficient, investing in the wrong technology complicates productivity further while hampering profits, leading to multiple issues in supply chain. Blockchain technology is the solution to the problem of structuring data with built-in security features. Blockchain technology enables decentralization with the participation of members on distributed networks....	OPTIMAL KEY GENERATION FOR PRIVACY PRESERVATION USING BLOCKCHAIN TECHNOLOGY
<i>Blockchain technology in finance</i>	... Security can be enhanced using blockchain in any system. Blockchain technology offers decentralised security and privacy. Sensors used in IoT systems are resource constrained....	Performance Issues and Research Challenges in Designing a Secure IoT with Blockchain
<i>Impact of blockchain on banking sector</i>	... Banks are denoted as one of the essential pillars or the basic structure of our economy, and it help in the growth and transformation in society. The financial sector acknowledges the transformative influence of blockchain technologies on various actions like forging unique revenue, furnishing operation efficiency, improving end-user experience, and reducing risk in business operations....	The impact of blockchain in banking and financial services
<i>Impact of blockchain on banking sector</i>	... The financial sector acknowledges the transformative influence of blockchain technologies on various actions like forging unique revenue, furnishing operation efficiency, improving end-user experience, and reducing risk in business operations. This paper has intensely explored how blockchain works in banking and financial services.	The impact of blockchain in banking and financial services
<i>Impact of blockchain</i>	... Due to the transparency, auditability, immutability, operational resilience and data encryption essential in blockchains, it can secure the	Impact of Blockchain

Search Term	Relevant Excerpt	Citation Source
<i>on banking sector</i>	cyber security, forbid crooked actions and perceived tampering of data. Blockchain technology will deal the movement in the banking industry and associated facilities in prevailing area. Correspondingly inspecting cases both at home and abroad, it might be recognized areas that blockchains are used aggressively, utilized in banking sections are growing into remittance, resolution, smart contracts and reliability...	Technology in Modern Banking Sector to Exterminate the Financial Scams

Smart Contracts

Search terms:

- *Applications of smart contracts*
- *Definition and features of smart contracts*

Search Term	Relevant Excerpt	Citation Source
<i>Applications of smart contracts</i>	<p>... Then, depending on the agreement between the two businesses, the funds could be transferred automatically to the supplier upon shipment or delivery. Real estate transactions, stock and commodity trading, lending, corporate governance, supply chain, dispute resolution, and healthcare are only a few examples where smart contracts can be used.</p> <p>Smart Contract Pros and Cons The primary benefit of smart contracts is similar to the benefit of blockchain technology-they remove the need for third parties....</p>	What Are Smart Contracts on the Blockchain and How They Work
<i>Applications of smart contracts</i>	<p>... Particular attention is given to the French legal doctrine in the issue of formulating the definition of "smart contract" and identifying its characteristic features, the various points of view of French legal scholars are compared. Examples of the most effective use of a smart contract in economic relations are given. The problems of applying contractual legal obligations and obligations of French law to smart contracts are considered....</p>	Правовое регулирование смарт-контрактов во Франции
<i>Applications of smart contracts</i>	<p>... The technical difficulty of making changes and the inability to handle complex transactions are some issues with smart contracts that need to be rectified to gain mass adoption. Uses of Smart Contracts Smart contracts can be used in a variety of fields, from healthcare to supply chain to financial services. Some examples are as follows: 1....</p>	Smart Contracts - Overview, Uses, Benefits, Limitations
<i>Definition and features of smart contracts</i>	<p>... Conclusions: the definition of the place of a smart contract in the system of civil law agreements is proposed. A smart contract, taking into account its features, is a contractual design, and not a contract form, which has the following characteristics: conclusion and existence in exclusively electronic form in the blockchain system; automatic execution of an emerging counter contractual obligation without the need for a separate expression of the will of the parties to the contract; the impossibility of changing the smart contract after it was posted on the blockchain network, even by agreement of the parties....</p>	Prospects and Issues of Legal Regulation and Application of Blockchain Technology in the Civil Law Transactions of the Russian Federation
<i>Definition and features of smart contracts</i>	<p>... Much like the definition of blockchain, the uses for the ledger system will only evolve as technology evolves. Smart Contracts What is a smart contract? These are digital, programmed contracts that automatically enact or document relevant events when specific terms of agreement are met....</p>	What Is Blockchain Technology? How Does It Work? Built In

Search Term	Relevant Excerpt	Citation Source
<i>Definition and features of smart contracts</i>	... Sources Zhang, Jim. What Are Smart Contracts and How Do They Work?...	Smart Contracts and Their Characteristics - Scalable Solutions

Data Security and Privacy

Search terms:

- *Blockchain technology for data security*
- *Privacy implications of blockchain*

Search Term	Relevant Excerpt	Citation Source
<i>Blockchain technology for data security</i>	... The traditional land registry model lacks many essential requirements and mired with a different type of malpractices and security concerns. Blockchain technology has been proposed as a possible solution to counter these malpractices and security concerns. Even though there are many advantages of using blockchain in the land registry, still there are some concerns and challenges that need to be reviewed and addressed for successful blockchain implementation in the land registry....	Current Status, Requirements, and Challenges of Blockchain Application in Land Registry
<i>Blockchain technology for data security</i>	... Adoption of Blockchain technology can improve the relationship between technology and users' privacy. Blockchain technology's digital landscape is a package of security and transparency....	Blockchain Technology Ensuring Data Security & Immutability by ...
<i>Blockchain technology for data security</i>	... Organizations need to secure their data by implementing strong authentication and cryptography key vaulting mechanisms. Blockchain technology is functioning enough to address the challenge of how to secure the data and prevent malicious cyber-attacks. Reports say the global blockchain technology market is likely to be around \$20 billion by 2024....	Blockchain Technology Ensuring Data Security & Immutability by ...
<i>Privacy implications of blockchain</i>	... For secure data exchanges, blockchain development services securely are the best to challenge the traditional approaches. Adoption of Blockchain technology can improve the relationship between technology and users' privacy. Blockchain technology's digital landscape is a package of security and transparency....	Blockchain Technology Ensuring Data Security & Immutability by ...
<i>Privacy implications of blockchain</i>	... This review sets up the discussion of how blockchain redefines data flow by separating the power of collection, access and query of data to different entities. After illustrating how this change regrounds privacy concerns in a blockchain system, the authors conclude with a discussion of the recommendations for future privacy research on blockchain. FindingsThe authors demonstrate that blockchain, by design, separates three core data-centric operations that are assumed to be inextricably linked in the canonical conceptualization of privacy: the collection, access and query of data....	Privacy implications of blockchain systems: a data management perspective

Search Term	Relevant Excerpt	Citation Source
<i>Privacy implications of blockchain</i>	<p>... In the communication process, it utilizes an experimental design varying the functional capability. Furthermore, by using the Taxonomy of Privacy-Protective Responses, this research argues that reducing the privacy concern by leveraging the blockchain capabilities can reduce user's privacy protective behavior. The research question of this study is – whether blockchain's capabilities of user control and security can reduce privacy concern, and thus reduce the privacy-protective responses of users?...</p>	Impact of Blockchain-based Digital Identity on Privacy Concern and Privacy Protective Behavior

Challenges and Limitations of Blockchain Technology

- [Scalability](#)
- [Energy Consumption](#)
- [Regulatory and Legal Considerations](#)

Scalability

Search terms:

- *Scalability issues in blockchain*
- *Solutions for blockchain scalability*

Search Term	Relevant Excerpt	Citation Source
<i>Scalability issues in blockchain</i>	<p>... Both Bitcoin and Ethereum are encountering low-efficiency issues with low throughput, high transaction latency, and huge energy consumption.</p> <p>The scalability issue in public Blockchains is hindering the provision of optimal solutions to businesses and industries. This paper presents a systematic literature review (SLR) on the public blockchain scalability issue and challenges....</p>	Systematic Literature Review of Challenges in Blockchain Scalability
<i>Scalability issues in blockchain</i>	<p>... It attracts the attention of researchers and academicians , along with different features of Blockchain it is having the major issue of scalability which can be categorized into throughput , cost, capacity and networking .</p> <p>Improvement in Scalability affects the application of blockchain in business . Scalability affects due to some other factors like block interval time and block size which also may reduce the security</p>	Scalability Issues of Blockchain Technology
<i>Scalability issues in blockchain</i>	<p>... Blockchain, a distributed technology with an immutable ledger, stores and processes loads of transactions. Because of this, blockchain faces scalability issues, with an increased number of nodes and transactions.</p> <p>Blockchain networks like Bitcoin and Ethereum face major scalability issues in context to the data computation....</p>	What are The Various Blockchain Scalability Solutions by ...
<i>Solutions for blockchain scalability</i>	<p>... Besides its huge storage data, the read-performance of blockchain servers is also low compared to that of non-blockchain servers such as YouTube and Google. There are several efforts and proposals on improving the scalability of blockchain. However, it is difficult to solve the blockchain scalability issues without compromising either the security, decentralization, or trust of the blockchain....</p>	A systematic review of blockchain scalability: Issues, solutions ...
<i>Solutions for blockchain scalability</i>	<p>With decentralized transaction management, every node can autonomously initiate a transaction according to the agreement specified by a smart contract, with no third-party intervention. As the number of people using blockchain expands, the number of scalability concerns, causing transaction latency. There are several Blockchain scaling solutions available to overcome these concerns. This post will discuss blockchain scalability and the key solutions to remove latency in the blockchain....</p>	What are The Various Blockchain Scalability Solutions by ...

Search Term	Relevant Excerpt	Citation Source
<i>Solutions for blockchain scalability</i>	<p>... While various factors can obstruct blockchain scalability, the wide spectrum of blockchain scalability solutions gives much-needed relief.</p> <p>Blockchain scaling solutions of many types, such as layer 1 solutions, layer 2 solutions, scalable consensus methods, and DAGs, offer viable methods to blockchain scalability problems.</p>	What are The Various Blockchain Scalability Solutions by ...

Energy Consumption

Search terms:

- *Energy efficiency in blockchain*
- *Environmental impact of blockchain*

Search Term	Relevant Excerpt	Citation Source
<i>Energy efficiency in blockchain</i>	... On the energy efficiency side, at the EU level, the European Blockchain Services Infrastructure needs to consider the energy consumption (and efficiency) of blockchain when deciding on the underlying technology for developing the necessary digital infrastructure. Another aspect closely related to energy efficiency is the scalability and performance of blockchain solutions. Therefore, it is recommended that energy efficiency-related issues need always to be treated along with scalability and performance requirements of the blockchain-based solution under evaluation....	New Thematic Report: Energy Efficiency of Blockchain Technologies ...
<i>Energy efficiency in blockchain</i>	... The topic of energy consumption of blockchains, and especially of the Bitcoin blockchain has recently triggered a lot of discussion and a debate has started on the topic of making Bitcoin a sustainable ecosystem. With regards to the energy efficiency of blockchain technologies, the thematic report presents the various approaches and methodologies that address the challenge of estimating the energy consumption of the Bitcoin blockchains. It should be mentioned that although the report is focusing upon the whole spectrum of consensus mechanisms, due to the high energy consumption of Bitcoin blockchain, only methodologies that analyse the energy consumption of the Bitcoin are available and, thus, covered in the report....	New Thematic Report: Energy Efficiency of Blockchain Technologies ...
<i>Energy efficiency in blockchain</i>	... Switching to greener sources of energy and developing less energy-demanding computation are other options to be further explored (Jones, 2017). It would also be possible to reduce the energy consumption of Bitcoin by restructuring the way blockchain maintenance is incentivised (de Vries, 2019). Like other emerging ICT-based technologies, blockchain also raises concerns about electronic waste (e-waste)....	Blockchain and the environment — European Environment Agency
<i>Environmental impact of blockchain</i>	... Energy Consumption The process of validating transactions on a blockchain network requires a lot of computing power, which in turn requires a lot of energy. This has led to concerns about carbon emissions and the environmental impact of blockchain technology. Some blockchain projects have adopted alternative consensus mechanisms, such as PoS, which consume significantly less energy....	The 5 Biggest Problems With Blockchain Technology Everyone Must ...
<i>Environmental impact of blockchain</i>	... Rough estimates show that Bitcoin creates 135 g of e-waste per transaction, which is 30 000 g more than a Visa transaction (de Vries, 2019). Notwithstanding the energy consumption and e-waste issues,	Blockchain and the environment —

Search Term	Relevant Excerpt	Citation Source
	blockchain technology can also support environmental protection. In particular, it can offer opportunities to make existing consumption and production processes more transparent, which could enhance their sustainability....	European Environment Agency
<i>Environmental impact of blockchain</i>	... It would also be possible to reduce the energy consumption of Bitcoin by restructuring the way blockchain maintenance is incentivised (de Vries, 2019). Like other emerging ICT-based technologies, blockchain also raises concerns about electronic waste (e-waste). Competing miners require more and more efficient mining hardware, leading to quick obsolescence, roughly every 1.5 years (de Vries, 2019)....	Blockchain and the environment – European Environment Agency

Regulatory and Legal Considerations

Search terms:

- *Legal challenges of blockchain*
- *Regulatory frameworks for blockchain*

Search Term	Relevant Excerpt	Citation Source
<i>Legal challenges of blockchain</i>	... Complexity Blockchain is a complex technology that requires a high level of technical expertise to implement and maintain. Tech challenges may hinder the widespread adoption of blockchain technology and discourage potential users and developers from engaging with it. Blockchain's complexity can also lead to errors and inefficiencies in implementation....	The 5 Biggest Problems With Blockchain Technology Everyone Must ...
<i>Legal challenges of blockchain</i>	... But along with blockchain's advantages come some significant challenges - and to reach its full potential as a game-changing technology, these issues will need to be overcome. Let's take a look at some of the most pressing problems facing blockchain today. Scalability Blockchain networks can be slow and inefficient due to the high computational requirements needed to validate transactions....	The 5 Biggest Problems With Blockchain Technology Everyone Must ...
<i>Legal challenges of blockchain</i>	... As blockchain, combined with smart contracts, may have an important role in these transactions, this paper aims to explore its prospective challenges, limitations and opportunities in the real estate sector and discover how the traditional intermediaries have to face a possible implementation of this technology.,This paper analyses the current intermediaries in the real estate sector in European Union (EU), their functions and how can blockchain strengthen the security of these transactions while reducing their time. The author uses a legal methodology to approach it.,Blockchain, combined with smart contracts, has both challenges and opportunities for the real estate sector. On the one hand, it may improve procedures, allow EU transactions and the interconnection between public administration....	Legal challenges and opportunities of blockchain technology in the real estate sector
<i>Regulatory frameworks for blockchain</i>	... Blockchain features can likely improve interoperability and access control to health data, and at the same time, preserve or even increase, the privacy of patients. Blockchain applications should address compliance with the current regulatory framework to increase real-world feasibility. This exploratory work indicates that published proof-of-concepts in the health domain comply with GDPR, to an extent....	GDPR Compliance for Blockchain Applications in Healthcare

