



Fund Future: Blockchain Based Crowdfunding

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ABSTRACT —

Crowdfunding has emerged as a popular alternative financing method that allows entrepreneurs, artists, and social initiatives to raise funds from a large number of individuals through online platforms. However, traditional crowdfunding platforms suffer from various limitations, such as high fees, lack of transparency, and limited access for certain regions. In recent years, blockchain technology has gained attention for its potential to revolutionize crowdfunding by addressing these challenges. This survey paper aims to provide a comprehensive overview of the research and developments in the field of crowdfunding using blockchain. We review the existing literature, highlight key concepts and mechanisms, discuss benefits and challenges, and present future directions for this exciting area of study.

Index Terms: Crowdfunding, Security, Smart Contracts, Blockchain

INTRODUCTION

For people and organisations to raise money for their initiatives and ideas, crowdfunding has grown in popularity. Traditional crowdfunding platforms, however, have drawbacks like exorbitant costs, a lack of transparency, and restricted access. By enabling safe, open, and decentralised networks for fundraising, blockchain technology presents a viable remedy to these constraints. Support Future wants to use blockchain technology to build a platform that lets people and organisations support initiatives that are consistent with their values and worldviews.

BACKGROUND

- Fundraising through crowdfunding has become a common way for people and organizations to generate money for a range of projects, initiatives, and endeavors. Traditional crowdfunding platforms, on the other hand, frequently suffer from geographic restrictions, hefty transaction costs, and centralized management. The promise of crowdfunding as a tool to empower people and support creative ventures is hampered by these restrictions.
- Blockchain technology provides a safe, decentralized, and transparent infrastructure that can overcome these drawbacks and completely alter the crowdfunding industry. Blockchain technology can be used by crowdfunding platforms to enable peer-to-peer transactions, lower costs, increase transparency, and open up new opportunities for people and organizations throughout the world.
- The goal of this study is to examine the potential of blockchain-based crowdfunding and comprehend its developments, difficulties, and potential future developments. We want to provide researchers, practitioners, and policymakers with insights on the current state of blockchain-based crowdfunding, its advantages, and the main research topics that call for further investigation by conducting a thorough survey.

MOTIVATION

The objectives of this survey on blockchain-based crowdfunding are as follows:

- **Provide an overview:** Present a comprehensive understanding of the concept of blockchain-based crowdfunding, including its definition, key features, and benefits over traditional crowdfunding models.
- **Review existing literature:** Conduct a systematic review of the research and academic publications related to blockchain-based crowdfunding. Analyze the state of the art, identify trends, and highlight key findings and insights.
- **Explore technical solutions:** Look into the technical approaches and structures used by blockchain-based crowdfunding platforms. Describe how tokenization, cryptocurrencies, decentralized applications (DApps), smart contracts, and tokenization enable safe and effective crowdfunding procedures.

- **Assess case studies and projects:** Examine actual instances of crowdfunding platforms and initiatives powered by blockchain. Analyze their accomplishments, obstacles they overcame, and the difference they made in empowering people and fostering new companies.
- **Identify benefits and challenges:** Examine the pros and advantages of blockchain-based crowdfunding, including its greater accessibility, lower costs, improved transparency, and global reach. Address the difficulties and unresolved problems associated with governance, user uptake, scalability, and regulatory frameworks.
- **Present future directions:** Recognize new developments, ideas, and possible lines of inquiry in the area of blockchain-based crowdfunding. Talk about how blockchain integrates with other technologies, international crowdfunding potential, sustainability issues, and the changing nature of decentralized finance (DeFi).

By achieving these goals, this poll hopes to offer a thorough and current understanding of how blockchain technology is enabling crowdfunding. It will be a useful tool for academics, professionals, and decision-makers who want to learn more about the advantages and disadvantages of this novel fundraising strategy.

DEFINITION AND TYPES OF TRADITIONAL CROWDFUNDING:

Crowdfunding is the process of getting a lot of people to contribute money to a project, venture, or cause, usually through an internet platform. Bypassing conventional financial institutions, it offers an alternative financing model that enables people or organizations to obtain funding directly from the public.

There are several types of crowdfunding, each catering to different project types and funding needs. The commonly recognized types of crowdfunding include:

1. **Donation-based Crowdfunding:** In this paradigm, people give money to a project or cause without hoping to get anything in return. Donors support activities like philanthropic endeavours, disaster relief efforts, or community projects because they are personally interested in them or want to support a particular cause.
2. **Reward-based Crowdfunding:** In this kind of crowdsourcing, contributors provide money to a cause in exchange for gifts or incentives other than cash. These incentives might range from early access to a good or service, special recognition, or exclusive items, depending on the project and the amount provided.
3. **Equity-based Crowdfunding:** Individuals can invest in a project or company through equity crowdfunding in exchange for ownership equity or shares. Investors contribute money with the hope of receiving financial rewards, such as dividends or capital gains, based on the venture's success and profitability.
4. **Debt-based Crowdfunding:** This technique, also known as peer-to-peer lending or crowdlending, entails lenders providing capital to borrowers who then pay back the loan plus interest over a predetermined time frame. It offers a substitute for conventional banking channels by enabling borrowers to get loans directly from the public.
5. **Real Estate Crowdfunding:** This crowdfunding variant focuses specifically on financing real estate projects. Investors contribute funds towards real estate development, property acquisition, or rental projects, with the expectation of returns through rental income, property appreciation, or profit-sharing.
6. **Royalty-based Crowdfunding:** In this arrangement, investors put money into a project in exchange for a cut of any future profits or royalties the business makes. These kinds of crowdsourcing are frequently used in creative industries including publishing, cinema, and music.

LIMITATIONS OF TRADITIONAL CROWDFUNDING:

1. **Lack of Transparency:** When it comes to how funds are managed and distributed, traditional crowdfunding sites frequently lack transparency. Contributors have little insight into how their money is spent, which might raise questions about fraud or mismanagement. Contributors can follow the progress of their contributions and confirm the legitimacy of the crowdfunding process thanks to blockchain-based crowdfunding's transparent and unchangeable transaction records.

2. **High Fees:** For hosting campaigns and enabling transactions, traditional crowdfunding platforms generally charge high fees. These costs may deplete the funds raised and lessen the campaign's overall effectiveness. The procedure is more affordable for both project creators and contributors thanks to blockchain-based crowdfunding platforms' use of decentralised systems, which can drastically lower or even completely remove middleman fees.
3. **Geographical Limitations:** The geographic areas that traditional crowdfunding sites cover are frequently restricted. For people and initiatives in underrepresented or economically challenged areas, this may limit access to financing options. Globally accessible blockchain-based crowdfunding platforms promote more inclusivity and diversity in fundraising by permitting participation and contributions from anybody with internet access.
4. **Limited Accessibility:** Restrictions may apply to traditional crowdfunding sites depending on the type of project, the amount of money being raised, or the need for accreditation. These restrictions may make it difficult for small-scale or specialised projects to obtain funding. The decentralised and open environment offered by blockchain-based crowdfunding platforms enables a wider range of projects to seek investment without predetermined limitations.

By addressing these limitations, blockchain- based crowdfunding offers a more transparent, efficient, accessible, and secure alternative to traditional crowdfunding models. It provides opportunities for global participation, reduced fees, improved accountability, and increased investor confidence, thereby empowering individuals and projects to access the necessary funding for their endeavours.

INTRODUCTION TO BLOCKCHAIN

- Blockchain is a decentralized and distributed digital ledger technology that makes it possible to record transactions across numerous computers or nodes, verify them, and store them securely. It is made up of a series of interconnected blocks, each of which forms a chronological chain and contains a list of transactions and a reference to the block before it.
- The consensus process used by the blockchain allows users to approve and validate the transactions contained in each block. By doing away with a centralized authority, this decentralized strategy ensures the accuracy, integrity, and permanence of the data that is recorded.

KEY FEATURES AND ADVANTAGES OF BLOCKCHAIN:

Blockchain technology offers several key features and advantages that make it suitable for various applications, including crowdfunding:

- **Decentralization:** Blockchain is a peer-to-peer system that divides control and decision-making among numerous nodes. Decentralization eliminates the need for middlemen, lowers the possibility of single points of failure, and improves the system's security and resilience.
- **Transparency:** Everyone connected to the network can see every transaction that has been recorded on the blockchain. Because of the transparency, all parties involved may audit and verify the transactions, which encourages trust and responsibility.
- **Immutability:** On the blockchain, it is nearly impossible to change or tamper with a transaction after it has been recorded. Blockchain is a trustworthy source of truth because of its immutability, which guarantees the legitimacy and integrity of the transactions that are recorded.
- **Security:** Blockchain uses cryptographic methods to safeguard data kept on the ledger and secure transactions. Blockchain technology is very safe since public-key cryptography, hashing algorithms, and consensus processes guarantee the secrecy and integrity of the data.
- **Efficiency:** Blockchain eliminates the need for intermediaries, streamlines processes, and automates trust through consensus mechanisms. This efficiency reduces costs, speeds up transaction settlement times, and simplifies complex workflows.

CHALLENGES AND OPEN ISSUES

While blockchain-based crowdfunding holds significant promise, there are several challenges and open issues that need to be addressed for its successful implementation and widespread adoption in the context of Fund Future. These challenges include:

Regulatory and Legal Frameworks:

Crowdfunding powered by blockchain operates in a regulatory environment that is still developing. The distinctive features and complexity of blockchain- based crowdfunding may not be completely supported by current financial rules and securities laws, particularly when it

incorporates tokenized assets or securities offerings. For blockchain-based crowdfunding to grow sustainably in the future, legal frameworks that guarantee investor security, thwart fraudulent activity, and promote innovation must be developed.

User Adoption and Trust:

Overcoming user acceptance and trust issues is crucial if blockchain-based crowdfunding is to take off. The blockchain technology may not be well-known to many potential contributors, or they may be worried about its complexity, usability, or security. It is crucial to inform and increase user understanding of the advantages and safety features of blockchain-based crowdfunding platforms. Additionally, creating trust through openness, strong identity verification processes, and reputation systems can support contributor confidence-building.

Interoperability and Standardization:

An extensive network of platforms, protocols, and token standards define blockchain technology. The blockchain-based crowdfunding industry has significant issues with interoperability and standardization. Future crowdfunding campaigns would have a wider audience and be more effective if various blockchain networks and platforms could seamlessly integrate and communicate with one another. This would enable cross-platform transactions, improve liquidity, and facilitate cross-platform transactions. For the purpose of promoting cooperation and interoperability among blockchain-based crowdfunding platforms, industry-wide standards and protocols must be developed.

- **Governance and Consensus Mechanisms:**

- Blockchain-based crowdfunding platforms must have strong governance and consensus procedures if they are to continue to operate and develop over time. In order to provide transparent decision-making, settle conflicts, and adjust to shifting market conditions, decentralized governance models must be created. To overcome the difficulties of processing a large number of transactions in real time, consensus methods must be designed that strike a balance between scalability, security, and energy efficiency.

- **Security and Privacy Considerations:** Blockchain technology has built-in security measures, but it is not impervious to security flaws and privacy issues. Particularly vulnerable to code mistakes and vulnerabilities are smart contracts. Important hurdles for blockchain-based crowdfunding include ensuring the reliability and security of smart contracts, putting in place suitable access rules, and protecting user data and privacy. To reduce security concerns and protect the interests of potential fund members, ongoing research, audits, and best practices are needed.

- **Scalability and Performance Enhancements:** Blockchain networks, particularly open ones, have scalability and performance issues with regard to throughput and latency of transactions.

A flawless user experience requires scaling blockchain-based crowdfunding platforms to manage several concurrent transactions and assuring real-time confirmation of contributions. To meet these issues, it is essential to do research and development aimed at enhancing scalability solutions, such as layer-two protocols, sharing, and off-chain channels.

The development and broad adoption of future crowdfunding platforms will be aided by addressing these difficulties and unresolved problems. To leverage the full potential of blockchain technology in boosting crowdfunding campaigns, collaborative efforts between researchers, practitioners, regulators, and industry stakeholders are required.

INTEGRATION WITH OTHER TECHNOLOGIES

The ability to integrate blockchain-based crowdfunding with other cutting-edge technologies has the potential to significantly improve the usability, security, and effectiveness of platforms for raising money in the future. For illustration:

- **Artificial Intelligence (AI):** AI can be leveraged to analyse crowdfunding data, identify trends, and provide personalized recommendations to both project creators and contributors. AI-powered algorithms can assist in assessing the viability and impact of projects, improving decision-making processes, and enhancing the matching of projects with interested contributors.
- **Internet of Things (IoT):** IoT devices can enable the tracking and verification of physical assets or project milestones associated with crowdfunding campaigns. This integration can enhance transparency, accountability, and the trustworthiness of project progress and outcomes.
- **Big Data Analytics:** The integration of big data analytics techniques with blockchain-based crowdfunding platforms can enable the extraction of valuable insights from large datasets. This can aid in understanding contributor behaviours, identifying market trends, and optimizing campaign strategies.

- **Identity Verification Technologies:** Integrating identity verification technologies, such as biometrics or self-sovereign identity systems, with blockchain-based crowdfunding platforms can enhance security, prevent fraud, and ensure compliance with regulatory requirements.

EMERGING TRENDS IN BLOCKCHAIN BASED CROWDFUNDING

The field of blockchain-based crowdfunding is continuously evolving, and several emerging trends and innovations are worth exploring:

- **Non-Fungible Tokens (NFTs):** NFTs can be integrated into crowdfunding campaigns to offer unique digital assets, collectibles, or access rights to exclusive content. NFTs have gained significant attention in the art and gaming industries, opening up new opportunities for creators to monetize their work and engage with their supporters.
- **Decentralized Finance (DeFi) Integration:** Integration with DeFi protocols can enable decentralized lending, borrowing, and yield generation within crowdfunding platforms. This can provide additional financial services to project creators and contributors, unlocking new possibilities for capital formation and investment strategies.
- **Community Governance:** A sense of ownership and community involvement can be cultivated by putting into practice community-based governance models, where project contributors have a vote in decision-making and resource allocation. Decentralized autonomous organizations (DAOs) may contribute to the empowerment of participants and the facilitation of group decision-making.
- **Impact Investment and Social Tokens:** Blockchain-based crowdfunding can incorporate the idea of impact investment, allowing contributors to support initiatives that are in line with their social or environmental ideals. Social tokens that signify membership or ownership in a group or initiative can encourage continued participation and honor ardent supporters.

These potential future directions and opportunities show how blockchain-based crowdfunding can continue to develop and empower people and initiatives around the world. Examining these developments and patterns can help finance crowdsourcing become more widely accepted and have a greater impact on society.

SUMMARY OF KEY FINDINGS

- Compared to traditional crowdfunding, blockchain-based crowdfunding has a number of benefits, including more transparency, lower costs, accessibility on a global scale, higher security, and improved investor protection.
- Blockchain-based crowdfunding is made possible through tokenization and smart contracts, which allow for fractional ownership, automatic agreement execution, and the development of thriving secondary markets.
- Blockchain-based crowdfunding has a number of challenges, including regulatory frameworks, user uptake, interoperability, governance, security, scalability, and privacy concerns. These problems need to be fixed for blockchain-based crowdfunding to be broadly used and to be effective.
- Increasing the functionality and effectiveness of crowdfunding platforms is possible through integration with other technologies, such as AI and IoT.
- Global fundraising opportunities and multinational cooperation could be made possible by cross-border crowdfunding, but other obstacles like regulatory harmonization need to be removed.
- Blockchain-based platforms can enable sustainable and socially conscious crowdfunding, boosting initiatives that are in line with environmental and social objectives.
- Emerging trends, like as NFTs, DeFi integration, community governance, and impact investment, present exciting opportunities for innovation and involvement in blockchain-based crowdfunding.

IMPLICATIONS FOR FUTURE WORK

- Further research is needed to develop clear regulatory frameworks and legal frameworks specific to blockchain-based crowdfunding, ensuring investor protection and fostering innovation.
- It is possible to analyze user adoption and trust in blockchain-based crowdfunding platforms to find ways to improve potential contributors' knowledge, usability, and confidence.
- Interoperability and standardization efforts should be explored to enable seamless integration and compatibility between different blockchain networks and crowdfunding platforms.
- Studying efficient governance models and consensus mechanisms can help blockchain-based crowdfunding establish decentralized and transparent decision-making systems
- Security and privacy considerations should be addressed through continuous research, auditing, and best practices to mitigate risks and ensure the protection of user data.
- Scalability solutions and performance enhancements need to be investigated to handle high transaction volumes and reduce settlement times in blockchain-based crowdfunding platforms.

CONCLUSION

- Fund Future's blockchain-based crowdfunding model has a huge potential to change the way projects are funded and give people power globally. Future crowdfunding platforms will be able to transcend the constraints of conventional crowdfunding, enable international collaborations, and assist sustainable and socially responsible initiatives by utilizing the transparency, security, and efficiency of blockchain technology.
- However, overcoming the difficulties and unresolved problems, such as legislative frameworks, user adoption, interoperability, governance, security, scalability, and privacy concerns, is essential to the success of future blockchain-based crowdfunding. For fund crowdsourcing to develop and reach its full potential, industry stakeholders including regulators, practitioners, and researchers must work together.
- As the industry develops, incorporating AI and IoT technologies, investigating new trends, and performing additional study on legal, administrative, and technological issues will help blockchain-based crowdfunding expand and find wider adoption. By doing this, we can build an ecosystem that is more open, transparent, and effective for funding initiatives and bringing about positive change across a range of fields.

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