

Crowdfunding using Blockchain Technology: A Review


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Crowdfunding is a method of obtaining money for a project by asking a lot of people for modest donations, usually online. Nowadays, the biggest issue with crowdfunding is the trust component. People are reluctant to donate because of the increasing number of frauds that are occurring today. However, if donors could be assured that their money would be put to good use, donations may rise significantly. The need to employ blockchain in crowdfunding arises here. With the blockchain system, transactions are tracked over a network of computers that are connected to one another. This essay discusses the shortcomings of the present crowdfunding systems in use and makes recommendations for how to make things better.

Keywords: Crowdfunding, Blockchain, Health care, Smart contract

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Introduction

Crowdfunding has helped close the gap between individuals who need help and those who are privileged and willing to provide. Due of the convenience and ease of online transactions, it has altered traditional fundraising. Fundraising through crowdfunding has gained appeal, especially in countries without universal healthcare. The Public Health Foundation of India conducted study in 2018 that found that 55 million Indians are now living in poverty as a result of medical expenses. In India, the biggest crowdfunding platforms raised almost 272 crores for healthcare that year, and they are rapidly growing. Lack of donor confidence is one of crowdfunding's main drawbacks because of the rise in frauds. The FBI cautioned the public to exercise caution due to the Covid-19 outbreak's surge in charity fraud. The need for blockchain integration in crowdfunding is now evident.

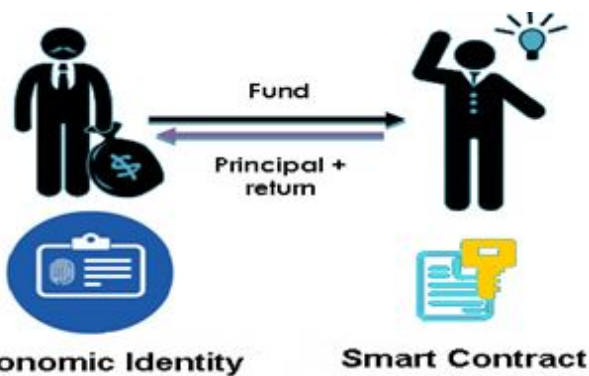


Figure 1: Framework for Crowdfunding using Blockchain

Blockchain allows for decentralisation, which lowers the risk of fraud and makes tampering with the data practically impossible. Additionally, each contributor can track the usage of every dollar they contribute, which enhances confidence. Smart Contracts are self-executing programmes that, in the event that all requirements are met, will instantly transfer the required amount of money. Solidity can be used to create Ethereum smart contracts. Use the cryptocurrency wallet MetaMask to communicate with decentralised applications. Users can access it using a Chrome extension or a mobile app.

Literature Review

An exploratory study on the knowledge, advantages, and barriers experienced by young potential entrepreneurs

Was done by Susana Bernardino and J.Freitas Santos[1]. The findings reveal that young entrepreneurs were unable to thoroughly investigate a variety of prospective business models, particularly the one involving investment, because of their limited understanding of crowdfunding. They also believe it makes it easier to communicate with a larger audience and get client feedback.

According to Cynthia Weiyi Cai's study[2], there are gaps in the economics and finance literature regarding the two FinTech applications of crowdfunding and blockchain. It is based on an examination of 402 publications that were written between 2010 and 2018 and included a thorough review of key works in the field. The analysis of them reveals that, although not in all financial industries, the trust element of blockchain minimises the need for middlemen.

According to K Vidya's work[3], building a crowdfunding application with zero-knowledge verification of user identity and user data encryption protected by a lattice-based cryptosystem is now possible in practise.

For the advantage of donors, machine learning has also been used to predict campaign success. According to this study, the three types of on-screen characters that make up the modern crowdfunding concept are the person who comes up with the idea or starts the task of financing a venture, the people or investors who invest in the concept, and a system that connects the two characters to help the venture succeed.

The constraints of crowdfunding are examined in the study by AtluriDivija[4]Choudary after the role of technology in crowdfunding is discussed. Exorbitant prices, shady companies, IP risk, DIY marketing, and fine print laws and regulations are examples of restrictions. We talk about the failures of Manu, Versatyl, Freedom 251, and CST-01. Additionally, it highlights how the token system, surplus availability, decentralisation, and smart contracts of the blockchain are advantageous for crowdfunding. Blockchain-based crowdfunding platforms are the future of the ideal investment for investors due to their excellent reputation.

A blockchain-based smart contract was presented by Kangana W.M. and 4 other people to manage crowdfunding[5].

In order to make it simple for donors and campaign designers to start up and support campaigns, this project aims to provide interactive forms. These forms allow for the creation of campaigns, money contributions, campaign monitoring, request approval, and request fulfilment. It's crucial to create executable code that runs on top of blockchain in order to accomplish this. The smart contract is the name of the executable code.

The article by Abhrajit Sarkar[6] concentrates on the measures taken by SEBI to safeguard investor funds through the enactment of numerous laws and regulations, such as the ban on crowdsourcing for equity raising to HNIs (High Net worth Individuals). It also includes a list of websites that assist creative businesses in raising money, such as Start 51 and Ignite Intent. What follows is history. Currently, Reliance is India's biggest corporation. He found funding for his textile company. Even movies have participated in fundraising campaigns, and these businesses have had great success. The main risk is that ideas might be duplicated or even stolen, which would obstruct the company's expansion.

The study by Ethan Mollick[7] focuses on how platforms for crowd funding have fundamentally impacted and changed how money is raised. For instance, the biggest website, Kickstarter, has over 48 000 projects and helped fund 227 million dollars, but most of the huge projects were delayed and most of them had to lower their profit margins to succeed. Kickstarter allowed companies to raise funds for items like the Pebble "smart watches," Ouya "games," and other things that venture financiers were unwilling to support. The report lists four different types of crowdsourcing that could be applied: 1) Equity-based, 2) Donation-based, 3) Reward-based, and 4) Peer-to-Peer Lending.

In a study by Felix Reichenbach and Martin Walther[8], logit and cox regression models were used to assess various hypotheses. The findings suggest there is little evidence to support a specific impact of an economics degree on businesses with CEOs who self-identify as college graduates. The value of the venture and the quantity of early VC investors are related to failure probability. Family businesses are less likely to collapse. Since frequent updates on campaign development, external certification, promotions, or start-ups are associated with a high risk of failure, investors should not use them.

In their research, they discovered that businesses with the legal form "entrepreneurial company" or those who have participated in several crowdfunding campaigns have a greater failure rate.

A study by Raveena V.1 and Sunayana N.2[9] found that during COVID-19, crowdfunding is expanding quickly. Crowdfunding for COVID-19 significantly surged after March 2020. During this time, people began helping and giving to one another. As internet platforms spread, everything began to run via them, including communications, financial transactions, and other activities. Over the past several years, crowdfunding platforms have raised billions of dollars in the form of loans, equity, rewards, and gifts through the use of social media and internet platforms like LinkedIn, Facebook, and others. Investors are not thought to be particularly welcome in the Indian economy.

In the study by Amara Myriam, Amal Ben Cheikh, and Tarek Abdellatif[10], a semantic assessment-based qualitative method is used to show how lenders and borrowers feel about their contributions to a crowdfunding platform and to identify additional motivations aside from fundraising and product consumption. The study's findings suggest that a person's decision to take part in a crowdfunding website can be influenced by social media awareness, support for a meaningful cause, or personal relationships created between different parties, as well as a sense of belonging to a group conversation that develops peer.

By providing interactive forms for campaign creation and donation, Ms. S. Benila and three other authors of a study on crowdfunding that uses blockchain technology [11] claim to make it easier for campaign creators, donors, and investors to start and support campaigns. With the suggested solution, we may resolve the issue that exists on the current crowdsourcing platforms. The following is a list of some of the elements of the proposed system, including Trust, Money Control, No Fees, Donor Guarantee Policy, All Transactions are Recorded, and Secure Money Storage.

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According to this article by Dr. Aishath Muneeza and Z. Mustapha[13], the adoption of blockchain technology in crowdfunding will significantly reduce transaction costs and give the system trust. There is also coverage of the many methods for crowdfunding, including donation crowdfunding, reward crowdsourcing, lending crowdfunding, and equity crowdfunding.

This paper also explores the challenges of crowdfunding and how blockchain could be able to solve them. There are two ways to link blockchain and crowdfunding: with or without cryptocurrency. However, strict cyber regulations must be implemented before this may be used.

The connection between crowdfunding platforms and investors has been identified by Cephas P.K. Coffie and Zhao Hongjiang's research[14]. The main challenge for new firms anywhere is obtaining the appropriate funding, even though there are additional sources. Hu (2014) asserts that when crowdfunding platforms carry out fraudulent transactions, investor investments may be lost. Trust is a problem for humans as a result. The issue of investor protection and security in crowdfunding is addressed with the introduction of blockchain technology.

Equity crowdsourcing is discussed in this study by Zach Zhizhong and Huasheng Zhu[15]. Capital is raised for companies via a specific form of crowdfunding called equity crowdfunding. With its low entry barrier, low price, and quick speed, it boosts and promotes innovation. This study examines the problems of fair crowdsourcing in China. According to an analysis of blockchain technology, equity crowdsourcing might be a safe, practical, and cost-efficient choice. Additionally, it facilitates peer-to-peer transactions, makes trades easier, and helps one comprehend market circumstances. However, using blockchain requires a significant amount of electricity, which must be managed.

The primary justifications given by Brazilian technology-based companies (TBCs) for choosing reward-based funding over other alternatives are outlined in the study by André Amedomar and Renata Giovinazzo Spers[16]. When companies founded on science and technology adopt innovative and creative methods to procure products and services, they are referred to as TBCs. They examined five TBCs, of which three were prosperous and all of which were active in different marketplaces. The main justifications for the project's creation included analysing market demand, receiving product feedback, and evaluating communication methods. They find that in addition to the fact that they don't sufficiently describe how they intend to utilise the funds, one of the contributing elements to this is the modest size of these TBCs that generate revenue.

The article by Firmansyah Ashari [17] describes how covid-19 has affected many countries and how the government must provide substantial financial support to tackle it. During the COVID-19 era, a lot of organisations solicited money from businesspeople and other investors to help the government provide aid to individuals in need. As a result, building confidence with investors is crucial to getting finance. By utilising the blockchain technology and the idea of smart contracts, we can win the donors' trust. An agreement that is recorded on the blockchain and executed automatically when a predetermined condition is met is known as a smart contract.

Blockchain has different applications such as cryptocurrency price predicting [18,23]. Other blockchain applications are certification verification, healthcare management etc. [19-22].

Ankita A. Malve, Shweta M. Barhate, and Satish J. Sharma[24], the work's authors, examine blockchain, a recently developing technology that can help funders and fundraisers communicate more effectively. It also underlines how eliminating the middleman can streamline transactions and boost their effectiveness. They designed an experiment to demonstrate the functionality of transactions on the Ethereum virtual computer and to add every dollar donated.

Felix Hartmann, Gloria Grottole, Xiaofeng Wang, and Maria Iliaria Lunesu[25], the study's authors, provide specifics on the success

Factors for blockchain fundraising as opposed to traditional methods. Decentralization, transparency, and secure transactions were the essential components. The majority of people still know little to nothing about blockchain, despite an increase in awareness-raising activities. The potential for future expansion in this sector is made clear by this review article.

In this article, Alex Bockel and Jacob Horisch[26] talk about sustainability and crowdfunding. By utilising cutting-edge products, services, and techniques that increase revenue or benefit the local economy and environment, sustainable development crowdfunding seeks to address this problem. Because of the higher associated risk that businesses experience when taking donations and engaging in other activities, we can ensure that crowdfunding is a better alternative than making a gift to sustainable development.

Challenges of Crowdfunding

- The accounting requirements for money raised through crowdfunding are rife with confusion.
- The same person or fund raiser may introduce the campaign on two different platforms more than once, frequently with the same name and objectives.
- Sometimes terrorist groups would try to raise money by passing themselves off as a charity or non-governmental organisation (NGO) that helps starving people in Yemen, Lebanon, and other underdeveloped countries.
- On the crowdfunding site Milaap, there are 0.05% fraud complaints, but on another site called Ketto, over 23% of projects are rejected because they are judged suspicious.
- The idea behind a project is its most crucial component. It is essential to the operation of the business. Therefore, they need to be safeguarded.

Issues and Future Scope: Since the majority of fake applications must share some basic traits that can be recognised and appropriately mentioned, artificial intelligence and machine learning models could be applied to these platforms. This would enable volunteers to review the applications before continuing with the campaign if they become suspicious. To filter the campaign, ratings based on numerous elements and components, such as risk, could be used.

There is plenty of room to reduce the cost of raising capital given the broad usage of blockchain technology in the future and its expanding application today.

As a result, the notion of a minimum donation may be abandoned, allowing everyone to contribute whatever they like.

Following are major challenges in this field:

- A significant reliance on volunteers might not be required as often if checks were performed by employees, but fundraising expenses would surely go up.
- The reliability and integrity of the just launched campaign would always be in doubt.
- People who collect money independently should be more watchful and diligent about the organisations to which they donate, and some study is needed.
- In a legitimate campaign, the fund raiser's friends and family would often contribute, therefore this might be a way to recognise the campaign.

Conclusion

By bringing people from different places together, crowdfunding has aided in bridging the gap between those in need and those wishing to lend a hand. While the benefits of crowdfunding are numerous and expanding, the risks are also numerous and growing. Every day, more scams are reported.

Therefore, strict cyber restrictions should be implemented before adopting blockchain. Managers of the campaign should use social media to advertise it to the general audience. It is crucial to identify the real campaign, and different strategies must be established to do so. Artificial Intelligence and machine learning can be used to do that.

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