



## Challenges of Crowdfunding (Village Banking) in Zambia: Solutions and Opportunities

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**Abstract** - Crowdfunding is a new phenomenon that has piqued the curiosity of academics and practitioners alike, owing to its potential as a source of alternative finance. It is considered a mechanism with significant potential for expanding access to finance for entrepreneurs in developing economies. One such platform in Zambia is known as “Village Banking”. Village banking has been discovered to be the most profitable platform in Zambia, outperforming even traditional risk-free platforms such as micro-financing. Village banking has enabled business growth, idea realization, and has generally improved the lives of many participants. The risks associated with the village banking system, on the other hand, have been increasing. As the popularity of crowdfunding has increased, so have the challenges and opportunities. In this paper we employ a systematic literature review that defines crowdfunding, its properties, discusses the challenges, opportunities of Crowdfunding specifically the Village Banking platform. In addition, we conducted a survey to determine the main challenges faced by Village Banking participants in Zambia. The results of the survey identified the following primary challenges; online infrastructure, trust, monitoring of payments, tracking of collections, and approval of payments. Based on the literature reviewed and survey conducted, we proposed the use of blockchain technology to address some of the challenges identified.

**Keywords:** Crowdfunding, Village Banking, Block chain, Smart Contract

### I. INTRODUCTION

For generations, traditional fund providers such as banks, venture capitalists, government agencies, and foundations have been the primary sources of outside financing for projects and entrepreneurial ventures [1][2]. Crowdfunding has become a popular and feasible alternative to traditional methods of funding which has led to funding a wide range of projects[3][4][5]. Crowdfunding is a logical and orderly arrangement used to raise capital through the collective effort of family, friends, customers, and investors. The capital raised is used for a variety of purposes, such as a new business, an existing business, a construction or farming project. The Internet and social media platforms are popular platforms for crowdfunding. [3] define crowdfunding as “an *open* platform used on the Internet for the provision of financial resources, either in the form of donations or in exchange for some form of recompense and or voting privilege in order to keep up enterprises for specific purposes”. Similarly, crowdfunding is also defined as “the ability to raise capital for specific project investments as well as start-ups for new ventures [7].

Thus, crowdfunding is used to assist people in overcoming adversity as well as reaching their inspirational goals. This is typically done through the formation of campaigns. [6] says crowdfunding is “*the works of entrepreneurial individuals and groups whose ethnic, social, and profit motivation is to seek funding for their ventures*”. This is done by raising moderately small contributions from an extremely large number of individuals using the Internet, without traditional financial intermediaries. It is a technique that has been adopted and is currently used in many countries worldwide. According to [8] crowdfunding emerged as a new form of fundraising following the 2008 economic downturn, and it helped revolutionize the fundraising process, particularly for start-ups as well as small and medium businesses.

Several recent microfinance effect assessments have used randomized controlled trials revealing only minor findings on microloans which have had a favourable impact [9]. They have spurred more focus on finding long-term solutions for securing reliable supplies and respected the life-saving services of the poor [9]. As a supplement to the many informal methods reported in the financial diaries, international and domestic organizations are now promoting informal self-regulated groups that help poor households manage their financial affairs. In India, they are known as Self-Help Groups, and in many African countries, they are known as Village Savings and Loan Associations [9]. At the end of 2014, there were an estimated 135,000 groups in 27 African countries, with approximately three million members and an average savings of US\$30 per member [9].

In Zambia, the crowdfunding platform that has gained popularity is known as “Village Banking”. Village banking in Zambia has expanded rapidly as compared to traditional banks. The reason being that traditional banks require physical collateral which can be sold off in an event of defaults. On the other hand, Village Banking is purely dependent on trust and the capability of the individual.

With a lot of benefits village banking is offering in African countries, there come challenges which cannot be underestimated. In addition, technology has been used to overcome various challenges faced by various sectors. Therefore, this paper seeks to address the following questions:

1. What are the challenges of crowdfunding investigated by various researchers?
2. Are the reported challenges like those faced by groups in Zambia?
3. What are the opportunities introduced by village banking?
4. What technology can be used to alleviate the challenges emanating from village banking in Zambia?

The rest of the paper is organised as follows; in the following section we discuss the background to village banking in Zambia. The methodology adopted to address the questions is presented in section 3. Thereafter, challenges of crowdfunding identified by various researchers are discussed in section 4. We discuss the challenges and opportunities of the village banking platform in Zambia in section 5. In section 6, we discuss proposed solution for the village banking platform as it relates to the challenges. The conclusion and future work are presented in section 7.

## II. BACKGROUND TO VILLAGE BANKING IN ZAMBIA

Crowdfunding has grown at an exponential rate in Zambia as a substitute solution for finance modelling. In Zambia,

crowdfunding is known as Village Banking which is an offline participatory funding platform [10]. The concept behind village banking is helping individuals to save and borrow money at an agreed interest rate. Usually, the interest rates are lower than those offered by established banks and other microfinances. The main purpose of village banking is a way of empowering disadvantaged groups such as women in supporting their businesses. The borrowed funds are invested in businesses and paid back at a lower interest rate. At the same time, the participants would save money which gains interest at a certain rate which cannot be obtained from traditional banks or other lending institutions.

A typical village banking group would consist of usually 20 or more members who meet on a regular basis to save money and give loans. The group would agree on a minimum saving and leave it open or shares with a maximum as to how much one can save or borrow in a particular month. At the end of a fixed cycle (typically 9–12 months), all savings, including accumulated interest and fees, are distributed among group members, and a new cycle begins. Savings are kept in a simple strong box, usually with three locks and three members would be selected and given a key each. In most of these groups, no written accounts are used because members have limited numeracy skills.

Village banking groups have several advantages that have been identified [11]. Member trust and governance skills are developed through frequent savings liquidation and distribution, as well as by conducting all transactions in the presence of all group members. There is no need for outside capital, the interest earned stays in the community, the project costs of organizing groups are low, and the commitment to save regularly may encourage savings and reduce non-essential spending.

### A. Motivation

This work is different from what has been presented because it details not only the challenges of crowdfunding currently being faced in Zambia but opportunities too. Our work differs from [10] in that we discuss the opportunities of crowdfunding (village banking) and how they can be maximized for financial inclusion.

## III. METHODOLOGY

In order to answer the questions presented in Section 1, this paper used two approaches. The first is conducting systematic literature review to identify secondary data that address the challenges encountered in crowdfunding around the world. The second approach was a survey to answer question 2 and 3. We discuss these two approaches in the following subsection.

### A. Systematic Literature Review

All systematic reviews contain the same key components. In order to have confidence in the validity, reliability, and application of the results, we must first identify all pertinent

high-quality research, the research that addresses a specific subject and uses proper study designs to reduce bias. A defined, systematic, and repeatable search technique is one of the objectives of a systematic review, along with inclusion and exclusion criteria that specify which research should be included or omitted [20]. Electronic data sources were identified and examined and a total of 321 results were obtained. This research includes all these components from the search technique to the relevance criteria ahead of time in a peer-reviewed procedure to minimize bias. Table 1 shows the the refined results from secondary data sources after the search.

**B. Search Criteria**

To choose acceptable and representative publications in the field of crowdfunding, we only utilized one type of searching technique. Electronic databases for scientific papers were used in an automatic search as shown in the table below. The terms” crowdfunding”, “benefits and challenges of crowdfunding”, “opportunities and solutions of crowdfunding”,” challenges of crowdfunding (village banking) in Zambia,” and” crowdfunding as an alternative finance mechanism” were used in the search.

TABLE I: Electronic Data Resources

Data Sources	Search Results
IEEE	28
Elsevier	49
Google scholar	59
Emerald Insight	6
Springer	1
ACM	3
MDPI	3
Other (Oxford Press/Sage)	27
Total	163

**C. Inclusion and Exclusion Criteria of Studies**

After the search, we used our inclusion and exclusion criteria to restrict the search results. For studies that seemed to fit the criteria or where we lacked enough details to be certain, full reports were acquired. The full reports were then subjected to the inclusion and exclusion criteria once more, allowing us to choose the pertinent literature for our review. Therefore, the following criteria was once again used to assess the included research relevance to the review question.

- We included papers that examined the challenges, opportunities and benefits of crowdfunding.
- We included papers that measured the impact of the concept as being an alternative mechanism for finance.
- We included papers that examined solutions and opportunities of how crowdfunding can be enhanced to empower people using information technology.
- We included only the publications written in English.

- We included the publications published in the time frame from 2010 to 2022.
- We excluded all the papers that did not directly address crowdfunding, challenges, solutions, opportunities and technology.
- Papers that were not written in English were not included in the scope of the research.

**D. Survey Design**

A survey was conducted to determine the challenges and opportunities of Village Banking in Zambia. We carried out a qualitative and quantitative (mixed) research using a questionnaire with a sample size of 100. We used the simple random and convenient sampling method because we addressed people who are already on the Village Banking platform and the analysis was done using libre Office calc. This was done in order to get more views from the people because participants of the platform vary.

**E. Data Collection**

Underlying the whole review process, we engaged with the potential users of the platform to increase its relevance and improve the likelihood of uptake of the findings. For crowdfunding (village banking) we engaged 100 potential users for our review by carrying out a survey and analysing the feedback we got using the simple random and convenient sampling method. We incorporated three categories of potential users.

- Low level earners
- Middle level earners
- High level earners

**IV. IDENTIFIED CHALLENGES AND OPPORTUNITIES OF CROWDFUNDING FROM LITERATURE**

Around the globe, various challenges and opportunities of crowdfunding have been identified. Among the prominent challenges is regulatory issues. Due to the nature of crowdfunding, regulating crowdfunding has been an issue from many government agencies that deal with money. Other issues that have been identified are related to lack of social networks, trust among participants, fraud and many more. The table below highlights some of the challenges identified.

TABLE 2: Challenges and Solutions

Paper	Author	Year	Challenge Identified	Proposed Solution
From Harambee to Modern Crowdfunding: The Opportunities and Challenges	C. Wolf [15]	2017	1.Lack of social networks  2.Regulatory Issues	1.Develop social online networking sites that eventually mature. 2.Legalise

in Sub-Saharan Africa				Crowdfunding
Crowdfunding in Africa: Opportunities and Challenges	Chao et al [56]	2020	<ol style="list-style-type: none"> <li>1. Regulation</li> <li>2. Information Technology Infrastructure</li> <li>3. Social trust</li> </ol>	<ol style="list-style-type: none"> <li>1. CF legislation eg: (African Crowdfunding Association)</li> <li>2. Leverage mobile technology</li> <li>3. Adopt online trust experiences like online banking and e-retailing</li> </ol>
Prospects and Challenges of crowdfunding as an alternative Funding option in Nigeria	Aderemi et al [57]	2021	<ol style="list-style-type: none"> <li>1. Trust and Transparency</li> <li>2. Fraud and Corruption</li> <li>3. Lack of Regulation</li> </ol>	<ol style="list-style-type: none"> <li>1. Enforce security and demonstrate trustworthiness and reliability.</li> <li>2. Regulations should be provided to safeguard crowdfunding platforms</li> <li>3. Governments should provide a stringent regulatory framework for crowdfunding</li> </ol>

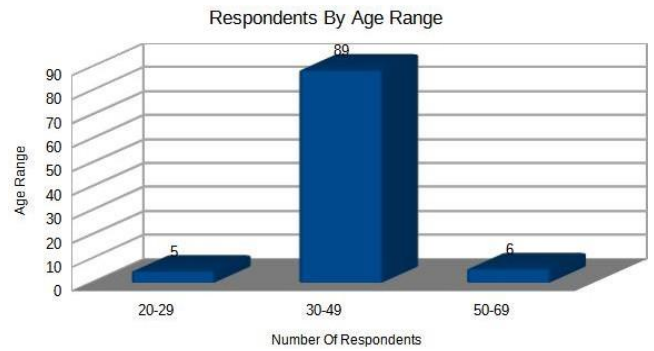


Figure 1: Respondents by Age

The age distribution shows that 89% of the respondents are in the age range of 30-49, 6% are in the range of 61-69 while 5% fall in the range of 20-29 years old.

The figure below shows the category of respondents. The respondents were drawn from three different types of groups representing low income, middle income and high income.

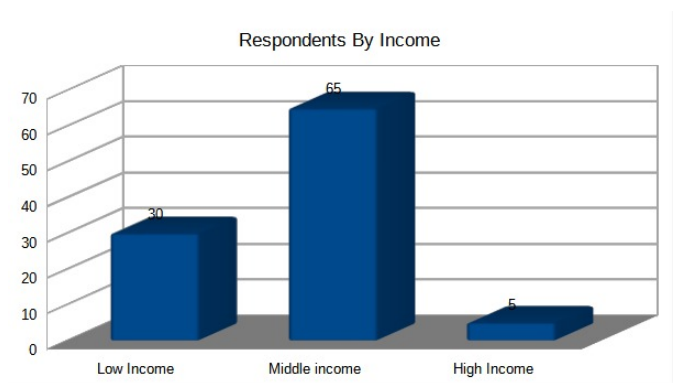


Figure 2: Respondents by income type

B. Challenges of Crowdfunding in Zambia

While it is believed that crowdfunding (village banking) offers important opportunities for enhancing access to finance as well as promoting entrepreneurship, innovation, and development in Zambia, it is also critical to take into account some difficulties that may impede the adoption and growth of crowdfunding. This is particularly true given that the main engines for the growth of the crowdfunding market, namely the crowdfunding platforms, are primarily business ventures. The figure below shows challenges of village banking as reported by respondents.

V. VILLAGE BANKING IN ZAMBIA

In order to understand the challenges of crowdfunding (Village Banking) in Zambia, a survey was conducted. This section discusses the challenges and opportunities of Village Banking in Zambia.

A. Respondents Demographic Data

Shown below are descriptive results of the survey.



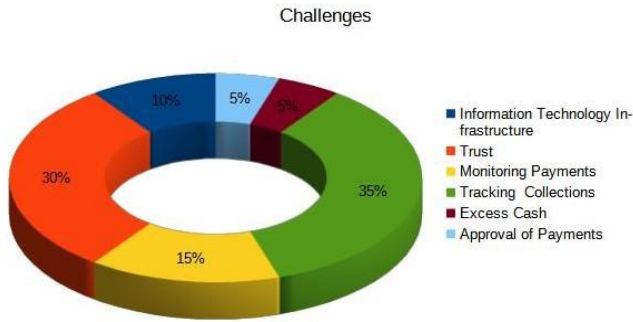


Figure 2: Challenges of Village Banking

i). Information Technology (IT) Infrastructure

Because access to social media and social networking sites is so important for online forms of crowdfunding, 10% of respondents said IT infrastructure was a challenge. Because web-based platforms are in use, having internet access is essential for their successful adoption and spread. The technological issues that arise in village banking are those that relate to how a payment solution is accessed, how the payment solution is provided, or how the payment solution is used. These include problems with the internet, fees, a poor mobile phone, downtime with bank systems or mobile providers, and security. Transferring funds between different platforms can be challenging, especially when sending money to different banks or mobile money providers to send money to different people. The difficulties are typically brought on by additional associated costs in the form of extra fees (withdrawal fees), time, and convenience. Users of village banking attempt to solve this problem by only using cash for transactions. Therefore, a system that will be practical and enable simple payment movement is required. The use of different platforms especially mobile money to send and withdraw money has become an issue due to the charges linked to mobile money.

ii). Trust

30% of the respondents said Trust is a challenge. According to the definition of social trust provided by [21], it is "the conviction that others won't intentionally or knowingly harm us if they can help it, and that they will look out for our interests if this is possible." This may seem to be at odds with traditional African crowdfunding customs, but it can be understood by the distinction between trusting fellow members of your in-group versus total strangers. Africans are less likely than other societies to trust strangers outside of their immediate social circle, even though they may trust familiar in-group members [22]. However, in order to enable a thriving crowdfunding market, both trust in online transactions and between strangers is necessary[23]. On the contrary stories have been told in Zambia of people fleeing with the money for in group members of the saving groups. The default rates are high and failure to recover funds that were invested have been

on the rise. This entails that even if the group is made up of people you trust, village banking is a business, and trust alone will not suffice some safeguards must be put in place.

iii). Monitoring payments

About 35% referred to how challenging it is to follow funds as it switches between peers. the present situation is such that only executive members can know the details of any payment made. In other groups only a selected few who are usually executive members receive the monies which are eventually paid out to members. While individuals move their savings to the coffers of the group which are usually bank accounts or mobile money accounts of executive members. It is crucial to keep an eye on how those funds are being collected and who is receiving payments. All transfers of funds and payments must be made in a more open and transparent way than just orally. This was noticed especially during the pandemic lockdown which led to meetings being held virtually.

iv). Tracking collections of money

15% of the respondents said lack of proper storage of information such as a database is a challenge thus tracking deposits made such as social fund, savings, loan repayments, penalties have been an issue. Therefore, a better method of tracking contributed savings, defaults, social fund and other Payments are required to make sure that everyone in the group is working towards the same objective as stated in their constitution.

v). Excess Money

5% of the respondents illustrated a situation when there is excess cash and members are not willing to borrow. Usually, executive members will borrow the money without accounting for it properly therefore lacking transparency and misuse.

vi). Approval of Payments

5% of the respondents said finances are raised as a group so guarantors are consulted when members want to borrow large amounts, or a consensus is determined by a reasonable number of representatives rather than by the decision of the most influential person. This can result into a loan request being accepted or denied. Sometimes the amount is reduced due to doubt if the money loaned out will be repaid back. In other cases, a member is asked to provide collateral usually in the form of title deeds for land or a white book for a car.

C. Opportunities of Crowdfunding in Zambia

Village banking is an important part of the local financial sector that contributes significantly to the Zambian rate of financial inclusion, particularly especially among women. The following figures shows respondents on some of the opportunities that village banking is promising to bring about.

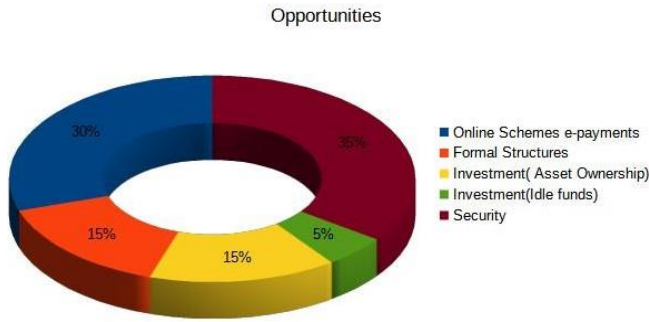


Figure 3: Opportunities of Village Banking

i). Online Banking Schemes

30% of the respondents said the absence of online services are a hindrance to the progress of the platform and introduction to online banking schemes will promote accessibility. [30] also affirms that online schemes are important to crowdfunding as it provides accessibility to other services such as e-payment methods.

ii). Formal and proper structures

15% of the respondents said putting in place structures will formalize the operations of the platform. This could increase trust among various member groups. In addition, having proper and formal structure could increase revenue from government perspective as it would increase the tax base. [31] agrees that structures are essential if crowdfunding platforms are to operate successfully.

iii). Investment (Asset Ownership and Excess Cash)

15% of the respondents said savings groups work to achieve a particular goal eg: fish farming, so a possibility of investments for asset ownership is achievable as done in equity crowdfunding. [32] affirms that such investments are driven by an expectation of returns.

iv). Investment (Idle Funds)

5% of the respondents said in circumstances where money is in excess it can be lent out or invested eg to financial service institutions so that it earns more profit for the group members.

v). Security

35% of the respondents' said security is an important factor when it comes to safeguarding of money in any investment. [33] attest that security is key for investment hence the emerging of security-based crowdfunding.

VI APPLICATION OF BLOCK CHAIN IN VILLAGE BANKING

Blockchains are distributed digital ledgers that are said to be impenetrable and immune to tampering, implemented without a central repository and typically without a centralized

authority (i.e., a bank, company, or government). At their most basic level, they allow a group of users to log transactions in a shared ledger so that, if the blockchain network is functioning normally, no transaction can be modified after it has been recorded [34].

To alleviate the challenges and embrace the opportunities of crowdfunding (village banking) we propose a blockchain application. Blockchain technology in crowdfunding may provide a solution to current challenges and may facilitate socially crowdfunding platforms [35]. Blockchain technology is a method of recording distributed ledgers [36]. It guarantees integrity, transparency, and data security. The technology is thought to have a lot of potential because it cannot be altered or faked. It can record transactions in a secure, transparent, decentralized, efficient, and low-cost manner [37].

Satoshi Nakamoto in 2008, was credited with first bringing the idea to the attention of the public. Data could be altered by numerous collaborating parties, therefore Nakamoto found a solution to the difficulty of ensuring the trust of data kept in a distributed storage [38]. Blockchain transactions are protected by cryptographic hash functions and verified by a network of participating nodes using proof of work or proof of stake algorithms. Although it cannot be changed once it has been put to the blockchain, a transaction may be transparently observed by all participants [39].

A. Distributed Ledger Technology

One of the most recent technologies that has been "hyped" is distributed ledger technology (DLT). A computer system with DLT is one that offers high levels of resilience, trust, security and service availability in addition to distributed storage, computing and control [40]. Transactions and represented assets are protected from manipulation and theft using cryptographic algorithms [41]. This technology will curb the challenges currently being faced on the village banking platform in Zambia. For example, a DLT can be used to secure all information and transactions done in Village Banking.

B. Smart Contracts

The widespread use of smart contracts has significantly accelerated the growth of blockchain [42], [43]. On the blockchain, smart contracts are simply executable codes [44], [45]. Transparency and immutability, among other qualities, are contradictory. These characteristics of smart contracts allow blockchain to carry out digital agreements between untrusted parties. In a variety of sectors, including the internet of things [46], access control [47], certificate audit [48], and micropayment [49], they have been extensively employed as the application carrier. Smart contracts will promote transparency on the village banking because when any predetermined condition is met smart contract automate the execution of the agreement so that all participants can be immediately certain of the outcome, without any intermediary

being involvement or loss of time. An example currently is the way money is sent on the platform usually to a selected few who are known as executives, using smart contracts everyone on the platform will be aware of the amount sent.

### C. Oracles

Smart contracts use data feed to bring external data into the blockchain system. Oracles are the name given to these data flows [50][51][52]. On the blockchain, smart contracts that serve data requests from other smart contracts serve as the oracles. In situations where inter village banking will be allowed (eg: excess cash being lent to other village banks or the bank or a financial service) the external flow of data will be done using oracles. [10] agree in their studies that if two parties agree then such transactions can take place.

### D. Permissioned Blockchains

Permissioned blockchains are private blockchains that can be viewed by the public but cannot be used by the public. To put it another way, they forbid open participation in transaction submission and validation without permission from the central authority. [53] Security on the village banking platform will be assured as only participants of the platform shall have permission to participate.

### E. Permissionless Blockchains

On a peer-to-peer network, permissionless blockchains allow users to modify the state while still maintaining a state on a peer-to-peer network (P2P). Users make changes to the state and make them available on the network as transactions. To ensure that only authorized users alter the state, transactions are cryptographically signed. [54] Identification of authorization is unique and only the authorized user is allowed access therefore promoting security. This can allow transparency and monitoring easier among members of the village banking. When members make changes to the transaction, everyone else on the group will be notified because all members maintain a state on the network.

### F. Non-Fungible Tokens

They are distinguished by their tamper resistance, atomicity, traceability, and verifiability [55]. When a token is fungible, it can be traded between participants to a transaction without increasing or decreasing in value. The inability to divide or combine a token is known as non-fungibility. According to Regner 2019 NFTs, Non-Fungible Tokens (NFTs) were developed to symbolize ownership of digital or physical assets. They are all unique and cannot be swapped or exchanged for another. Different transactions are done on the village banking platform by different members, this will help monitor payments, track payments and provide information that is unique for each participant thus building trust.

This study has presented challenges and opportunities of village banking (crowdfunding) in Zambia. Identified challenges trust, monitoring of payments and how to handle excess money emerged prominent. The study also identified some opportunities that could increase the uptake of village banking such as investment and online services. We proposed a solution with the view of mitigating the challenges and utilizing the opportunities via blockchain technology as it has a lot of benefits. Numerous advantages of the technology include tamper-proof client identity validation, assured security and confidence, decreased operating expenses, elimination of third parties from transaction processes, decreased financial risks, and dependable data sharing and verification.

Further works for this study we consider developing an online platform using blockchain technology.

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### VII. CONCLUSION

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