

CHAPTER I

INTRODUCTION

Recording acts of kindness, such as charitable donations, ensure clarity and accountability. This practice is essential for fostering donor trust and enabling effective monitoring and allocation of funds. However, challenges such as fraud and mismanagement have complicated trust in donation transactions [1], [2]. In increasingly complex global contexts, mere reputational assurances are insufficient to establish trust, particularly in charitable engagements where a lack of transparency can engender profound donor mistrust concerning the proper utilization and impact of their contributions.

Blockchain emerges as a robust solution to transparency challenges in various sectors. Featuring an immutable and tamper-resistant ledger, blockchain introduces a paradigm shift in how transactional data are recorded and maintained, enhancing consistency and reliability across the network [3]. Although this technology also supports anonymity [4], the primary focus in this context is on the immutability of data, ensuring that every data movement can be recorded accurately and is irreversible. The inherent decentralization and the permanence of records significantly enhance transparency among all network participants [5]. By integrating smart contracts and decentralized ledgers, blockchain allows donors to directly track the allocation and distribution of their contributions, ensuring that funds are used as intended [6], [7].

Previous research that discusses a framework for blockchain-based donation management [8] introduced a framework involving three main actors: the donor, those in need, and the trustee, which offered enhanced transparency and data synchronization. However, the framework has limitations due to the absence of government involvement. Our research develops a more inclusive model by adding key actors such as the Ministry of Social Welfare and tax authority, enhancing oversight, and simplifying tax deduction claims. Our model offers a more transparent and efficient solution by detailing the on-chain and off-chain processes, ensuring that all records are permanent and unalterable.

Our paper proposes a blockchain-based traceability model to improve transparency and accountability in the donation process. We particularly emphasize the immutability feature of blockchain technology, which ensures that data remains immutable for reliable transaction traceability. We proposed a blockchain-based model that aims to enhance transparency and accountability, as well as to reduce donor uncertainty and increase trust. This model enables donors to claim tax deductions as recognition for their contributions. Facilitating these tax claims is expected to motivate more people to donate, as it offers social and financial benefits.

However, it is essential to note that this model has not yet reached the implementation stage of decentralized applications (DApps), a process we will explore in future research. Currently, the model allows donors to have direct insight into the allocation and use of their contributions through a transparent, efficient, and verifiable system. We anticipate that the full implementation of the model in the form of DApps will enhance collaboration and record-keeping in donation management, while advancing innovation through decentralization that eliminates central control points, increasing transparency and user trust.

We organized our research as follows: Section 2 reviews relevant literature; Section 3 outlines the research methodology; Section 4 presents results and discussion; and finally, Section 5 concludes with recommendations for future work.